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A project designed to develop a television teacher rating instrument, and to study relationships between ratings of teachers, measures of student personality, and student reports of mood associated with instruction utilized over 2,300 undergraduates: 618 of them described an ideal teacher on an adjectival rating scale and the remainder rated professors in five television teaching experiments on semantic differential scales. Factor analytic procedures identified ten television teacher traits: communicative ability, stimulation, control, assertiveness, composure, dynamism, friendliness, wit, profundity, and intimacy. The teacher was rated higher on the factors of intimacy and assertiveness on television than in the classroom. The television presentation eliminated differences in teacher ratings due to student seating. The teacher achieved identical mood complexes over television and in the classroom. Two professors were rated higher on many factors than their colleagues but these variations occurred independently of other variables. Significant correlations were obtained (1) between student personality characteristics and reports of mood before and after television lessons and (2) between postlesson moods and teacher traits. Major changes in affective behavior occurred during experimental lectures, but the mood changes occurred independently of student personality characteristics. (The rating scale and semantic differential are appended.) (Author/JS)

Final Report

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# IMPROVING THE QUALITY OF EDUCATION BY IDENTIFYING EFFECTIVE TELEVISION TEACHERS

Lawrence Myers, Jr., Ph.D.

Syracuse University

Syracuse, New York

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L. M.

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# CHAPTER I

## SUMMARY

This research project explored three related problems in the presentation of effective instruction on television. The first phase of the problem was concerned with ascertaining those teacher personality factors consistently perceived by students and, from these, constructing an instrument to describe television teacher traits. The second phase of the problem was concerned with examining the nature and extent of relationships between student personality characteristics and their perceptions of television teachers. The third phase of the problem was concerned with studying the influence of a television teacher in modifying affective behaviors of students, and in relating such behavioral change to student personality characteristics and their ratings of teachers.

A review of the literature on teacher ratings suggested that teacher rating scales based on the assumption of direct teacher-student classroom interactions had little validity when the medium of television was inserted into the instructional equation. Consequently, from the domain of vocabulary available to describe teacher behaviors, a list was developed of adjectives believed to be relevant in those situations in which the only interactive relationship between student and teacher was a vicarious experience obtained by a student from viewing the teacher over the television system. A further restriction imposed on the list was the criterion that the adjectives could be presented to students in either unidimensional or bidimensional scale form.

The final list of 44 adjectives was then organized as a series of unidimensional ten-point scales. A sample of 618 undergraduate students at Syracuse University was asked to indicate on the scales the degree of importance they attached to each of the adjectives in describing an "Ideal Teacher." Student scores were subjected to a principal components factor analysis with equamax rotation to simple structure. From this procedure, fourteen positive factors, or "traits," were tentatively identified to describe an Ideal Teacher.

Following this preliminary development of an Ideal Teacher rating scale, five television teaching experiments were conducted for the purpose of refining the traits. Thirty-nine positive teacher trait adjectives previously selected were converted into bi-polar semantic differential scales. The instrument comprising these scales was administered following each experimental lecture. Students participating in the experiment also reported their moods at the beginning and end of each lecture by completing a Mood Adjective Check List (MACL) which identified twelve Mood factors. All students involved also had previously been administered the Stern Activities Index (AI), which identified twelve personality needs characteristics.

The first experiment involved a lecture prepared by Professor Beñjamin Burtt, of the Syracuse University Chemistry Department. Professor Burtt presented a lecture on "Kinetic-Molecular Theory" to one section of students in the chemistry lecture hall. He then presented his lecture to another section of students over television in exactly the same manner as in the lecture hall, with the television cameras serving essentially as reporters.

The second experimental lecture was prepared by Professor Frank Funk, of the Syracuse University Public Address Department. Intended for use in an introductory course, the topic, "Physical Behavior," gave Professor Funk an opportunity to demonstrate personally aspects of platform performance under discussion. Students who saw Professor Funk's kinescope were also shown a kinescoped lesson prepared by the late Professor Irving Lee, of Northwestern University, a man noted for a quiet, natural style of presentation. Comparisons were made between students' reactions to the two teachers.

The third experimental kinescope lecture on the topic, "Skimming," was prepared by Professor William Sheldon, Director of the Syracuse University Reading Center. This presentation utilized superimpositions of key words and phrases, and a trio of students in the TV studio to "represent" a normal class.

The fourth experimental program was prepared by Professor Lawrence Myers, Chairman of the Television and Radio Department. Highly visual in character, a deliberate attempt was made in the kinescope on "Communication Theory" to accentuate certain unique qualities of television in order to develop a lesson which would be impossible to reproduce in the classroom. Students who saw this lecture also saw a lecture on "Freedom and Responsibility in Broadcasting" by Professor Charles Siepmann, of New York University, in which no attempt whatsoever was made to use the television medium except to show a relatively static picture of Professor Siepmann as he talked. Comparisons of the effect of the two lectures were made.

Finally, students in an introductory course in broadcasting rated seven different professors who appeared over closed-circuit television during the course.

The ratings given to Professor Burtt by the 706 students who participated in his lecture either in the lecture hall or over television were factor analyzed to yield 15 Teacher Trait factors. Professor Funk's lesson was rated by 333 students; their ratings yielded 16 factors. Ratings obtained from the 260 students who saw Professor Sheldon resulted in 12 factors. Ratings from the 352 students who saw Professor Myers were combined with the ratings of the 206 students who also saw Professor Siepmann; the resulting sample of 558 yielded 13 factors. Finally, ratings given to the seven professors in one course by 82 students were factor analyzed to yield twelve factors. On the basis of a comparative analysis of traits developed from all experiments, the following factors and contributory scales were recommended for inclusion in studies identifying television teacher personality characteristics of importance to, and discernible to, students receiving instruction by means of television.

1. Communicative Ability--communicative, easy to take notes, organized, direct, and clear vs. inarticulate, hard to take notes, unorganized, evasive, and hazy
2. Stimulation--interesting and stimulating vs. boring and deadening
3. Control--controlled vs. impulsive
4. Assertiveness--assertive and aggressive vs. restrained and timid
5. Composure--relaxed and poised vs. tense and ill-at-ease
6. Dynamism--forceful and dynamic vs. weak and static
7. Friendliness--friendly and sincere vs. hostile and insincere

8. Wit--gay and witty vs. solemn and stolid
9. Profundity--profound and brilliant vs. shallow and mediocre
10. Intimacy--personal and intimate vs. impersonal and remote

In each of the experiments, the students involved were classified on the basis of sex, year in school, "major" area of study, and school or college in which enrolled, as well as personality factors.

When defining an Ideal Teacher, women rated the factors of Stimulation, Friendliness, Control, Dynamism, Composure and Note Taking as of significantly greater importance than men. Men rated Wit and Intimacy higher than women. Few variations were noted on the basis of year in college. Based on areas of study, students majoring in education rated Dynamism and Composure higher than group averages and rated Profundity and Wit lower. Students in the social sciences were relatively more concerned with Dynamism, Profundity, and Wit and less with Composure. Dynamism and Profundity were also rated relatively higher than average by students in the humanities, while students in the sciences rated these factors lower than average. In terms of specific schools or colleges, higher than average ratings were given to the factors of Communication and Profundity by students in engineering; Communication, Intimacy, and Composure by nursing students; Communication, Intimacy and Profundity by speech students; and Composure by students in home economics.

Similarities, rather than differences, occurred most often with Professor Burtt's experiment. Although women rated the teacher higher than men on ease of note taking in both classroom and television presentations, sex appeared to make no differences on the factors of Stimulation, Dynamism, Friendliness, Profundity, Assertiveness, Communication, or Wit. On the Teacher Trait factors of Stimulation, Dynamism, Friendliness, Control, Profundity, Communication, Composure, and Ease of Note Taking, no significant differences were observed between ratings by students to whom Professor Burtt lectured by television and those to whom he lectured in the classroom.

Significant differences occurred between the television and normal classroom presentations on four teacher personality traits. Students who saw Professor Burtt on television rated him as more Personal and Assertive than those who saw him in the classroom; conversely, students who saw Professor Burtt in the classroom rated him as more Forceful and Witty. The fact that Professor Burtt was judged to be more personal and intimate (as opposed to impersonal and remote) on television than he was in the classroom negates the argument that television is an impersonal medium for students. The combination of close-ups and the illusion of the teacher looking each student straight in the eye simultaneously provides a one-to-one student-teacher relationship, and students perceive this attribute of intimacy in a teacher properly utilizing the medium. The factor of Assertiveness may similarly be related to the all-inclusive eye contact. The factor of Wit appeared to be related to an occurrence in the classroom when an experiment failed which was not duplicated in the television presentation. The ratings on Forcefulness would imply that, in a limited sense, the television set may construct a thin electronic barrier between teacher and student; but this single variation favoring the classroom should be examined in light of the failure to develop significant differences on most other factors.

Teacher ratings to Professor Burtt were compared on the basis of student location--front or rear--in the classroom. Students located in the front, physically much nearer the teacher, rated him significantly higher on the factors of Stimulation and Ease of Note Taking. Neither of these differences were noted in the television section.

At the conclusion of Professor Frank Funk's experimental lecture, men rated him higher than women on the factors of Dynamism and Assertiveness, while women rated him higher than men on Forcefulness, Control, and Ease of Note Taking. Students in the social sciences rated Professor Funk as more impressive, students in the professions rated him as more dynamic, while students in education rated him low on both.

Women rated Professor Lee significantly higher than men on Ease of Note Taking and Clarity, while men rated him higher on Dynamism. Year in school was not found to be an important variable. Few significant differences were observed in terms of academic areas of study.

On a comparative basis, Professor Funk was rated statistically higher than Professor Lee on the Teacher Trait factors of Stimulation, Activity, Grace, Communication, Forcefulness, Ease of Note Taking, Clarity, and Assertiveness; and lower on Naturalness. In terms of the time-space context in which Professor Funk lectured, these differences seem valid. Despite vastly different approaches to the medium by the two professors, neither was rated above the other on the factor of Intimacy. It would appear that recognition and use of the one-to-one teacher-student methodology on television is at least as important, if not more so, as production methods when capitalizing on the personal characteristics of the medium.

At the conclusion of Professor William Sheldon's lecture, women rated him higher than men on Composure and Control, but lower on Friendliness. No differences were observed on Ease of Note Taking, perhaps because of the production techniques devised to assist students in this activity. Year in school was not an important variable, nor was school or college in which students were enrolled. Students in the spring sections of the course who participated in the television experiment had higher SAT scores than did those participating in the fall semester; but this difference in verbal ability did not appear to affect the results.

At the conclusion of the television presentation by Professor Lawrence Myers, women rated him significantly higher than men on Ease of Note Taking and Friendliness. The students for whom the lecture was primarily intended--freshmen and sophomores--rated the teacher higher on the factors of Stimulation and Composure than did the graduate students who, conversely, rated him higher on Control. By way of contrast, extensive variations from the group mean by the journalism freshmen who were asked to assist in the experiment suggests that teachers should be rated only by students for whom their lectures are intended. On the basis of college, students enrolled in the School of Speech and Dramatic Art rated Professor Myers more Stimulating, Profound, Composed, and Confident than did students in Liberal Arts. The latter rated him more Organized and Friendly.

Comparisons were made between ratings given by students to Professor Myers and Professor Charles Siepmann. Students rated the former higher on the factors of Assertiveness, Wit, Organization, Friendliness, and Directness, and perhaps Stimulation and Confidence; but rated the latter higher on Profundity and Control.

In the final experiment involving seven television teachers being rated by one class of students, men rated the teachers as a group higher than women on the factors of Profundity, Stimulation, and Dynamism, but lower on the factors of Communication and Friendliness. The evidence strongly supports the thesis that students discriminate among teachers on the basis of the variables studied. On eleven of twelve factors, and on each of the thirty-nine separate adjectival scales, significant F-ratios between teachers were obtained. Various professors were rated higher or lower than others on a variety of scales. Two teachers among the seven appeared to achieve a relatively greater effect, in terms of student ratings.

In the Ideal Teacher experiment, and in connection with the lectures of Professors Burtt, Funk, Sheldon, and Myers, the design permitted comparisons to be made between student ratings of the teachers and a number of student personality needs characteristics. A large number of significant relationships were noted, varying from 9.5 per cent to 30.6 per cent of cells in the various correlation matrixes. The experiments, however, did not produce consistent patterns. The personality dimension of Emotional Expression was related to the Teacher Trait factor of Assertiveness in two experiments and to Forcefulness in two others. But the factors of Educability or Intellectuality did not yield consistent relationships with teacher ratings. Further work is suggested in this area.

The television teaching experiments were also designed to ascertain students' moods immediately prior to and following each lecture. Major changes in the mood-complexes of students occurred during every lecture. At the conclusion of Professor Burtt's lecture, significant changes were reported on all twelve mood factors. The moods of Vigor, Concentration, Elation, and Inspiration increased; moods of Fatigue, Skepticism, Anxiety, Sadness, Egotism, and Aggression decreased, as did Social Affection and Surgency. Mood changes that were reported by students exposed to Professor Burtt's television lecture were compared with those reported by students who saw him in the classroom. Variations in moods between the two groups at the beginning of the lecture were not present at the conclusion. Professor Burtt was able to achieve the same mood-complex by television as he achieved in the classroom. The medium of television was no barrier in this endeavor.

The Professors Frank Funk and Irving Lee experiments permitted comparisons of students exposed to both teachers. Nine of twelve MACL factors showed significant change after Professor Funk's lecture; seven after Professor Lee. Students viewing Professor Funk reported being in a greater mood of Concentration, Social Affection, Elation, Vigor, and Inspiration at the conclusion of the lecture than did those viewing Professor Lee.

Students involved in Professor William Sheldon's lecture reported significant changes on every mood factor. Students considered themselves to be Concentrating and Inspired to a significantly greater degree at the conclusion of the lesson, and reported significant decreases on all other factors.

The lecture by Professor Lawrence Myers was accompanied by significant changes on nine of twelve factors. Students reported decreases in six factors (Aggression, Fatigue, Anxiety, Sadness, Skepticism, Egotism) and increases in three factors (Concentration, Elation, Inspiration). The three remaining factors (Social Affection, Vigor, Surgency) maintained their high pre-lesson levels. Totally different mood patterns were reported after Professor Charles Siepmann's lecture to the same students. Seven significant changes occurred. Students decreased on five factors (Social Affection, Vigor, Elation, Egotism, Surgency) and increased on two (Concentration, Fatigue). Professor Myers' lesson was accompanied by a decrease in Dysphoria, while Professor Siepmann's lesson was accompanied by a decrease in Euphoria.

Significant differences were noted in the mood-complexes of men and women prior to the Myers and Siepmann lessons, and these differences tended to remain constant at their conclusion. The differences reported by students involved in this experiment occurred independently of sex, year in school, or interactions between these variables; but were significantly related to the teachers and, presumably, the environment created by them and their treatments of their subjects.

At the conclusion of each experiment, correlation coefficients were computed between post-lesson moods reported by students and their ratings given the teacher on the various Teacher Trait factors on the assumption that, at any given instant, the moods reported by a person may be related coincidentally to assessment of teacher traits.

Many significant relationships occurred: 35.6 per cent of all correlation coefficients in Professor Burtt's experiment were significantly greater than zero; 24.5 per cent were significant in Professor Funk's lecture; 29.2 per cent in Professor Sheldon's lecture; and 32.7 per cent in Professor Myers' lecture. Of 204 significant relationships, 181 were psychologically meaningful. Four Teacher Trait factors showed significant relationships with moods in at least three of the four experiments. Profundity was positively related to the moods of Inspiration, Vigor, Concentration, Social Affection, and Elation, and negatively related to Fatigue. Stimulation was positively related to the moods of Inspiration, Vigor, and Concentration, and negatively related to Fatigue. Wit was positively related to the moods of Social Affection and Elation. Communication was negatively related to the moods of Skepticism and Aggression. Of lesser importance, based on these experiments, but of sufficient interest for further study were the Teacher Trait factors of Dynamism, Composure, and Friendliness, as they related to post-lesson moods.

The final set of relationships involved in this study of teacher effect consisted of the two elements previously analyzed in terms of their relationships to the Teacher Trait Factors--student personality needs characteristics and student moods. It was hypothesized that students possessing certain personality characteristics would be likely to report certain moods concomitant with the lesson. Results were consistent for all experiments. Significant relationships were shown between certain personality types and reports of mood prior to the lessons. These relationships were generally favorably disposed toward a viable teaching-learning gestalt. Significant changes in moods occurred during each lecture, and the resultant moods were also correlated in many meaningful ways with student personality characteristics. However, no significant relationships of any consequence were found between the many significant changes in mood and the personality characteristics of the students. Mood changes, in other words, occurred independently of student personality characteristics.

# CHAPTER II

## INTRODUCTION

Despite much research in recent years on teachers and teaching, very little specific information has been developed that has wide application or high predictability. This introductory statement is not meant to detract from the impressive contributions of Ryans, Remmers, Flanders, Barr, Riley, Jackson, and others. But the fact remains that relatively little is known about the "art of teaching" as Gilbert Highet--a great teacher--calls it in his book of that title.[1]

The research reported herein evolved from a series of experiments conducted by the Television and Radio Department, Syracuse University.[2] Experienced and inexperienced teachers presented lectures in class and over closed-circuit television. As a part of studying the relative effectiveness of various instructor-media combinations, students rated teachers on a number of semantic differential scales. Significant variations led to the question of whether a relatively precise and meaningful instrument could be developed by which one might describe an effective television teacher in terms of characteristics discernible to students.

This question led to another. An individual's interpretation of reality depends not only upon his physical structure, that is, what he is able to perceive, but also upon his motivations, needs, values, and past experiences.[3] It became relevant, therefore, to study relationships between selected student personality characteristics and the ways in which students perceived and rated television teachers.

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[1] Gilbert Highet, The Art of Teaching (New York: Vintage Books, 1950). Pp. 258.

[2] Lawrence Myers, Jr., An Experimental Study of Influence of the Experienced Teacher on Television (Syracuse, N.Y.: Syracuse University Television and Radio Department, 1961). Pp. 66.

[3] Agnes C. Rezler, "The Influence of Needs Upon the Students' Perception of His Instructor," Journal of Educational Research, LVIII, No. 6 (February, 1965), 282-86.

Directly related to the problem of the nature of the learner and his perception of the television teacher was the nature and extent of influence of the teacher. From the hundreds of research studies that have attempted to estimate the effectiveness of television instruction, ranging from crude to sophisticated in design and covering most grade levels and academic subjects, it seems quite clear that television instruction is generally as effective as classroom instruction for the entire cognitive domain, whether the educational goal is merely to disseminate information for immediate retention or includes more complex mental activities such as understanding, analysis, application, and synthesis.[1]

The ability of a teacher to modify attitudes and inculcate new appreciations and values over television has also been demonstrated, although with less certainty; but such changes in affective behavior are also less certain of accomplishment in the classroom. In terms of the objectives of higher education, Whitehead has argued that the only justification for a university after Gutenberg has been its capability to preserve a connection between knowledge and a zest for life.[2] The university must make information available to the student, but the university's function should be to impart information imaginatively. Adapting this thesis, Syracuse University's Chancellor William P. Tolley has noted that the measure of a teacher is his success in stimulating and energizing the minds of his students.[3] Both imply that the affective domain of behavioral objectives is as important as the cognitive domain in the assessment of university teaching and learning.

Accordingly, an affective behavioral objective was selected for study in this television teaching situation. Specifically, it was to be determined whether a teacher could influence student mood or emotion over television, or whether the medium, while essentially neutral as an information conveyor belt, would act as an electronic barrier to reduce the impact of the teacher as an emotional catalyst to students. Perhaps only a truly inspiring teacher would be able to influence mood over television. If such were the case, it would be necessary to consider possible relationships between communication-induced mood and students' ratings of the communicator.

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[1] Wilbur Schramm, "What We Know About Learning from Instructional Television," _Educational Television: The Next Ten Years_ (Stanford: Institute for Communications Research, 1962).

[2] Alfred North Whitehead, _The Aims of Education_ (New York: Mentor Books, March, 1964), p. 93. (First published by MacMillan Co., 1929.)

[3] William P. Tolley, quoted in the _Syracuse Daily Orange_, October 6, 1961, p. 7.

This research project, therefore, proposed to study three related problems involved in the presentation of effective instruction on television. The first problem was to ascertain those teacher personality images, impressions, or factors that are consistently perceived by students and, from these, to construct an instrument to describe television teacher traits. The second problem was to examine relationships between selected personality characteristics attributable to students and student perception of television teachers. The third problem was to investigate one significant aspect of the influence of a teacher on television, that of stimulating the student sufficiently to effect a change of mood; and to study relationships between this aspect of affective behavior, measures of student personality, and ratings of teacher personality.

# CHAPTER III

## DEVELOPMENT OF A RATING SCALE TO IDENTIFY EFFECTIVE TELEVISION TEACHERS

### Background of Teacher Ratings

For many years scholars have attempted to define the combinations of qualities that determine a successful teacher. The general question of teacher competence has been extensively studied. As long ago as 1950, one bibliography listed more than 1,000 references.[1] Since then, research has continued to increase concurrently with the growing interest in such areas as child development, learning theory, and individual differences as these relate to a teacher's responsibilities. Because of the myriad approaches to the problem, no theory of teacher effectiveness yet promulgated has been universally accepted and no method of measuring teacher competence has been generally adopted.[2] As a matter of fact, scholars have not solved the semantic problem of the meanings of such terms as "teaching," "learning," and "instruction." Smith, for example, suggests that teaching is a broader term than instruction,[3] while Bruner implies the opposite when he suggests that a theory of instruction is concerned with how best to learn what one wishes to teach.[4]

A number of rationales for analyzing teaching effectiveness have been considered. Gage, for example, points out that teaching can be studied in terms of teacher activities.[1] Activities in turn require certain teacher behaviors, and Ryans has developed an information system theory of teacher behavior which describes five major categories of activities. These are motivating-reinforcing teacher behavior, presenting-explaining-demonstrating behavior, organizing-managing-planning behavior, evaluating behavior, and counseling-advising behavior.[2]

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[1] Simeon J. Domas and David V. Tiedeman, "Teacher Competence: An Annotated Bibliography," Journal of Experimental Education, XIX, No. 2 (December, 1950), 101-218.

[2] Bruce J. Biddle and William J. Ellena (eds.), Contemporary Research on Teacher Effectiveness (New York: Holt, Rinehart and Winston, 1964), p. 2.

[3] Othanel Smith, "A Conceptual Analysis of Instructional Behavior," Journal of Teacher Education, XIV, No. 3 (September, 1963), 294.

[4] Jerome S. Bruner, "Some Theorems on Instruction Illustrated with Reference to Mathematics," Theories of Learning and Instruction, ed. Ernest R. Hilgard (Chicago: National Society for the Study of Education, 1964), Part I, p. 307.

A second approach to the study of teaching is to analyze the process according to the types of educational objectives--affective, cognitive, psychomotor--to be sought. Gage suggests that a single theory of teaching may not necessarily apply to all kinds of objectives.

A third approach regards teaching as a process containing components corresponding to learning. As an example, for each of Miller's factors in learning theory--drive, cue, response, reward[3]--one might define related teaching factors as motivation-producing, perception directing, response eliciting, and reinforcement providing. A considerable body of theory is available for some of the concepts. One will observe, additionally, that overlap exists among the components in this approach and the components in the first approach relating to teacher activities. Hill, in summarizing the relationships, notes that the knowledge of learning theory provides a "worthwhile but extremely incomplete background for dealing with problems of teaching."[4]

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[1] N. L. Gage, "Theories of Teaching," Theories of Learning and Instruction, ed. Ernest R. Hilgard (Chicago: National Society for the Study of Education, 1964), Part I, p. 275.

[2] David G. Ryans, "Teacher Behavior Theory and Research: Implications for Teacher Education," Journal of Teacher Education, XIV, No. 3 (September, 1963), 275.

[3] Neal E. Miller, "Scientific Principles for Maximum Learning from Motion Pictures," Graphic Communication and the Crisis in Education, ed. Neal Miller (Washington: National Education Association, 1957), pp. 61-115.

[4] Winfred F. Hill, "Contemporary Developments Within Stimulus-Response Learning Theory," Theories of Learning and Instruction, ed. Ernest R. Hilgard (Chicago: National Society for the Study of Education, 1964), Part I, p. 53.

Barr has pointed out other ways in which teaching is defined by various researchers.[1] Some people, when studying teacher effectiveness, have in mind activities related to the teacher as a director of learning. Others define teaching to include responsibility for pupil guidance. Others include extra-curricular responsibilities, school-community responsibilities, and extra-school professional responsibilities.

Because of the variations in definitions of teaching, psychological orientation, and assumptions relating thereto, different criteria have been employed to measure teacher effectiveness. One approach cited by Barr is to describe teacher effectiveness in terms of professional competencies, and many studies have been concerned with such teacher qualifications as scholarship, experience, professional preparation, grading, presentation of material, control of students, and the like. The implicit assumption is that these qualifications are related to pupil performance.

A second approach has been to describe teacher effectiveness in terms of personal characteristics. Many words have been used to describe the personal characteristics of teachers and often the terms themselves mean different things to different people. Practically all lists of traits, whether prepared from a tabulation of the opinions of educators, leading authorities on character education, students--in school or out--, produce similar patterns, with such qualities as sincerity, impartiality, fairness, appreciativeness, friendliness, good judgment, and ability to give clear explanations.[2] The inference to be drawn from these studies is that pupils learn best under a teacher who possesses traits to which they can react favorably.

Most investigators take the position that the ultimate criteria of teacher effectiveness must be agreed-upon behavioral changes that occur in students as a result of their exposure to teachers. Such assessment is rarely accomplished, and Remmers and others have observed that the more immediate problem is to determine "predictors" of these criteria, or attributes of the teacher assumed to be related to teacher effectiveness in producing desirable changes in students.[1] Remmers has believed strongly for many years in the validity of student ratings (as opposed to supervisory or peer ratings) of instructors and has observed that no research has invalidated the use of student opinion as a criterion of teacher effectiveness. His early Purdue rating scale, for example, made use of the following ten traits selected because they were believed to be important and susceptible to student observation and judgment: interest in subject, sympathetic attitude toward students, fairness in grading, liberal and progressive attitude, presentation of subject matter, sense of proportion and humor, self-reliance and confidence, personal peculiarities, appearance, and stimulating intellectual curiosity.[2]

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[1] A. S. Barr, "Teacher Effectiveness and Its Correlates," *Journal of Experimental Education*, XXX, No. 1 (September, 1961), 134.

[2] Roy C. Bryan, *Pupil Rating of Secondary School Teachers* (New York: Teachers College, Columbia University, 1937)., Pp. 96.

Twenty years later, a summary of 193 articles on teacher recruitment listed the following desirable teaching qualities: personality, intelligence, liking for children, knowledge of subject, sense of humor, social adjustment, social hygiene, good health, liking for people, good citizenship, emotional stability, and enthusiasm.[3] At the same time, Witty analyzed student letters written in a national contest in order to determine the characteristics of the "helpful" teacher and reported the following traits in descending order of mention: cooperativeness and democratic attitude, kindliness, patience, wide interests, appearance, fairness and impartiality, sense of humor, good disposition, interest in pupil's problems, flexibility, use of recognition and praise, and teaching proficiency.[4]

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[1] H. H. Remmers, "Assessment of Teachers," _College Teaching by Television_, ed. by John C. Adams _et al._ (Washington: American Council on Education, 1958), pp. 122-27.

[2] G. C. Brandenberg and H. H. Remmers, "Rating Scale for Instructors," _Educational Administration and Supervision_, XIII (1927), 399-406.

[3] R. H. Eliassen and R. L. Martin, "Teacher Recruitment and Selection 1944-1947," _Journal of Educational Research_, XVI (1948), 641-63.

[4] Paul A. Witty, "Evaluation of Studies of the Effective Teacher," _Improving Educational Research_ (Washington: American Educational Research Association of the National Education Association, 1948), pp. 198-204.

Riley and colleagues published an extensive study in which students rated teachers on ten qualities important in good teaching: organization of subject matter, speaking ability, ability to explain, encouragement to thinking, attitude toward students, knowledge of subject, attitude toward subject, fairness in examinations, tolerance to disagreement, and instructor as "human being."[1] In contrast to a majority of other studies, Riley was concerned with teachers in higher education rather than primary or secondary education. An integral complement to this rating scale was the student expression of instructional ideals against which the ratings were compared.

In an experiment conducted by Hall, college students were asked to identify characteristics of "best" and "worst" teachers.[2] The descriptions were arbitrarily classified into five general categories of teacher characteristics: personality, appearance, ability, attitude toward subject matter, and attitude toward students and classroom behavior. One has difficulty in understanding certain classifications. Communication ability was classified in the category of attitude toward subject matter. Sense of humor was listed as a personality trait for "best" teachers, but inappropriate sense of humor was listed as an attitude toward students for "worst" teachers. Many characteristics listed under attitude toward students (friendly, interesting, pleasant, sincere, dull, narrow-minded, sarcastic, tyrannical) have been described as personality variables. The seeming inconsistencies point up the need for developing objective approaches to teacher characteristics.

Coffman selected eighteen traits on which students rated instructors.[3] Each trait was accompanied by five descriptive phrases to identify varying degrees of the trait. From these scales, four factors were suggested:

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[1] John W. Riley, Jr., Bryce F. Ryan, and Marcia Lifshitz, The Student Looks at His Teacher (New Brunswick, N.J.: Rutgers University Press, 1950).Pp. 166.

[2] Vernon C. Hall, "Former Student Evaluation as a Criterion for Teaching Success," Journal of Experimental Education, XXXIV, No. 1 (Fall, 1965), 1-19.

[3] William E. Coffman, "Determining Students' Concepts of Effective Teaching from Their Ratings of Instructors," Journal of Educational Psychology, XLV (1954), 277-86.

"empathy," which correlated highest with an over-all rating of excellence, organization, verbal fluency, and "punctual, neat, normal."

Use of student opinions in teacher ratings has been supported by experiments by Hovland and Weiss demonstrating that the effectiveness of a communication is related to the recipient's evaluation of the speaker.[1] Their experiments were likewise conducted with college students.

Because of the need in varying degree for different traits for different levels and kinds of instruction, no single clear pattern for a successful teacher may exist. Highet, for example, states that the "psychology of the normal" has not yet been advanced sufficiently to define a valid set of types to which teachers might aspire.[2] There is general agreement, however, that effectiveness is related to many factors rather than to a single factor. Remmers argues for a "multi-dimensional" approach, as also does Cattell and others previously identified.[3]

In most of the studies of teacher effectiveness cited here and elsewhere, the vital links have been the classroom relationships between teachers and students. Effective teachers have generally been defined in one of two ways: teacher activities--for example, fairness in grading, use of recognition and praise, communicative ability--and teacher traits--for example, enthusiasm, tolerance, kindness, patience, sympathy, tact. The measures relating to teacher activities have been described in terms of explicit classroom behavior. With few exceptions, measures relating to teacher traits have not only been described in observable classroom behavior but also in the context of direct student-teacher relationships.

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[1] Carl I. Hovland and Walter Weiss, "The Influence of Source Credibility on Communication Effectiveness," Public Opinion Quarterly, XV (1951), 635-50.

[2] Highet, op. cit., p. 37.

[3] H. H. Remmers, "Second Report of the Committee on Criteria of Teacher Effectiveness," Journal of Educational Research, XLVI (1953), 641-58; see also, Raymond B. Cattell, "The Principal Replicated Factors Discovered in Objective Personality Tests," Journal of Abnormal and Social Psychology, L (1955), 291-314.

## Television and Teacher Ratings

When the medium of television is inserted into the instructional equation, one may readily observe that teacher rating scales based on the assumption of direct teacher-student interaction in a classroom have no validity. Whether a television teacher is a fair grader, or shows patience and tact toward students, is immaterial; for the teacher has no opportunity to exhibit such behavior in most situations even if he wished to do so and the student has no opportunity to respond. Gone is the earlier dyadic approach where perceptions were based on relationships between two persons, teacher and student. The student now finds himself in a monadic situation where his personal interactive relationship with the teacher is limited to his rather intangible perception of the teacher as that person appears on the television tube. In one sense, what the student sees and hears becomes more important than what the teacher does.

The introduction of television into the formal educational scene has been halting and suspect. The initial development of the hardware occurred with little reference to education and less to learning theory.[1] The impetus to use television often has come from outside sources, such as foundations. In 1963 the National Education Association recommended that "The use of educational television . . . to broaden and deepen learning should be encouraged."[2] Three years later Vice President Hubert H. Humphrey departed from his written manuscript prepared for a White House Conference on Education to declare: "A most potent tool for educational advance is television, now in its infancy. Madison Avenue has found it a powerful force to influence men's minds through advertising. Why hasn't the educator also embraced it?"[3]

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[1] A. A. Lumsdaine, "Educational Technology, Programed Learning, and Instructional Science," _Theories of Learning and Instruction_, ed. Ernest R. Hilgard (Chicago: National Society for the Study of Education, 1964), Part I, p. 375.

[2] National Education Association, _Schools for the Sixties_ (New York: McGraw-Hill Book Co., 1963), p. 99.

[3] Quoted by Harold E. Wigren, "ETV: An Unfulfilled Promise?" Speech at AASA Convention, Atlantic City, N.J., February, 1966.

Undoubtedly much resistance is related to the limitation on interaction. Television has been used primarily as a vehicle for presenting stimulus materials, an area in which it excels as a medium. The rationale for such use is grounded in stimulus-response psychology; namely, that learning will occur in response to an appropriate stimulus. The implication of this rationale to some is the assumption that a highly skilled teacher may provide a more effective stimulus on television than will a less talented teacher in a classroom.[1] A more optimistic view is taken by Highet who believes that television will become one of the principal media for some types of teaching.[2] He sees television as providing some improvement on existing methods of lecturing by virtue of the special characteristics inherent in the medium. Accentuated will be an intensification of personal interest provided by the teacher's voice, face, and personality, illustrations and demonstrations, and key phrases superimposed or otherwise displayed in a manner conducive to gaining and holding one's attention.

In any event, the selection of teachers to appear on television is a crucial and perhaps the most difficult of all tasks involving the medium. Goggin, while arguing effectively for the maximal use of television, still believes that the personality of the teacher is the most important factor.[3] Kraetzer has pointed out the hit-or-miss practice by observing that someone has to make a subjective judgment and decide that one person rather than another has certain undefined attributes that will make him an effective television personality.[4] Rinker, when searching for the best television teachers, had to "trust his own judgment" in assessing personal qualities.[1] One of the early leaders in the development of educational television noted that experienced producers "will testify that the popular classroom teacher may be a 'dud' on television."[2] In a review of research, Allen cited the need to study the characteristics of the "television teacher" as a critical problem.[3] And Greenhill suggested that researchers should consider the "delicate area of comparing various instructors on television in order to identify the most effective television teachers . . . and to learn what makes some teachers more effective than others."[4]

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[1] Paul Woodring, "Reform Movements from the Point of View of Psychological Theory," Theories of Learning and Instruction, ed. Ernest R. Hilgard (Chicago: National Society for the Study of Education, 1964), Part I, p. 290.

[2] Highet, op. cit., p. 107.

[3] Richard J. Goggin, "Critique of Teaching by TV Demonstrations," College Teaching by Television, ed. John C. Adams et al. (Washington: American Council on Education, 1958), pp. 65-68.

[4] Warren Kraetzer, "Using the Best Teacher," Televised Instruction (Urbana, Ill.: National Association of Educational Broadcasters, 1959), pp. 56-59.

In reporting a study of registrants in courses in conversational Spanish and German on WHA-TV, Wisconsin, Allen reported that the instructor was considered to be the "most liked" feature of the televised lessons.[5] He concluded that the personality of the instructor was the most important program element.

McDaniel and Filiatreau, in studying attitude changes of students exposed to televised and conventional instruction, concluded that the acceptability of instruction over television was less related to the medium itself than to the techniques employed by the person teaching the course . . . and the ability of the professor to project himself over TV.[6] One of their students reported: The trouble is, we expect a professional TV personality . . . someone with Red Skelton, Bishop Sheen, James Conant, JFK, and Shelly Berman all wrapped into one person. After a comprehensive study of television and the teaching-learning process, Holmes concluded that, insofar as personal attributes were concerned, there was little conclusive evidence about either the instructor or the student.[1] McBride attempted to sum up what has been learned about the television teacher in the past fifteen years. While reiterating such qualifications as scholarship, teaching experience, professional preparation, and communicative ability, he stressed the importance of personality in transcending the technology to appear vibrant and real to the student.[2] As an advocate of the "master teacher" concept where television provides the means of distributing some of the talents of gifted teachers to many students, he argued for auditioning and screening procedures to aid in the selection of teachers. He did not, however, suggest the means by which "selection of the very best" might be accomplished.

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[1] Floyd Rinker,(Report of) Council for a Television Course in the Humanities: Its Concepts and Development (Boston: CTCH, 1960), Pp. 86.

[2] David D. Henry, "Educational Broadcasting--A Look Ahead," Emphasizing Educational Television (Ann Arbor, Mich.: Educational Television and Radio Center, 1956), pp. 10-13.

[3] William H. Allen, "Research on New Educational Media: Summary and Problems," Audio-Visual Communication Review, VII, No. 2 (1959), 83-96.

[4] L. P. Greenhill, "New Directions for Communications Research," Audio-Visual Communication Review, VII, No. 4 (1959), 245-53.

[5] William H. Allen, "Spanish and German by Television," Modern Language Journal, XL (1956), 139-42.

[6] Ernest McDaniel and William K. Filiatreau, "A Comparison of Television and Conventional Instruction as Determinants of Attitude Change," Journal of Educational Research, LVIII, No. 7 (March, 1965), 293-97.

As a part of a study of the relative effectiveness of experienced and inexperienced teachers in classrooms and on television, Myers developed a preliminary instrument of twenty semantic differential scales believed to reflect teacher characteristics.[3] In the experiment, students rated teachers after classroom and television lectures. In certain experiments teachers were rated higher on some scales after their television lecture than after their classroom lecture; on other scales, the reverse occurred. The variations supported the thesis that some teachers appeared to have more effective television personalities than others, and that the differences could be described and measured. This experiment led directly to the research effort reported in this paper.

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[1] Presley D. Holmes, Jr., Television Research in the Teaching-Learning Process (Detroit, Mich.: Wayne State University Division of Broadcasting, 1959), p. 152.

[2] Jack McBride, The Twenty Elements of Instructional Television (Washington: National Association of Educational Broadcasters, September, 1966). Pp. 27. (Multilithed.)

[3] Lawrence Myers, Jr., An Experimental Study of Influence of the Experienced Teacher on Television.

## Television Teacher Scale Development

Who is an effective teacher on television? How can he be identified? The first objective of the study was to develop a personality rating scale for television teachers.

The approach was similar to that taken by numerous experimenters. From the enormous vocabulary available to describe behavior--estimated as more than 18,000 adjectives, of which a large proportion might be applied in discussing teacher effectiveness--an attempt was made to combine, shorten, telescope, or otherwise select a more manageable list representative of the total domain of relevant teacher characteristics. The general procedure was to examine the literature in an attempt to include for consideration those personality factors deemed important in the assessment of teacher effectiveness. The crucial criterion for the television teacher trait adjectives was the necessity for each to describe a characteristic that could be perceived independently of student-teacher interaction. Additionally, an attempt was made to include only adjectives that appeared to have a specific utilitarian advantage for teacher description and selection. Some adjectival rating scales found in other studies were excluded. For example, "good--bad" was omitted. Past experience has shown that this scale may account for so much variance on an "evaluative" dimension of meaning that it is likely to obscure other factors. Osgood[1] has indicated that, beyond the three major semantic factors of evaluation, potency, and activity, when one begins to have people judge people, the evaluative dimension may split, or refine, into sub-factors. Further, although one might fairly assume that a teacher should be "good," the word has very little value in terms of precise description and discrimination.

In the search for adjectives useful for this research, many studies, including those previously described, were considered. Special note should be made of some additional relevant studies.

Barr and his associates have identified six broad categories believed to be related to general teacher effectiveness: a cognitive category, an affective category, a physical fitness category, a professional competency category, a general skills category, and a personal fitness category.[1] Because a television teacher is not normally in direct contact with students, most of Barr's categories are not applicable. The description of the teacher must be limited to his individual characteristics or personality traits discernible to students over television. Barr's sixth category, personal fitness, is relevant. To develop this category by a kind of consensus approach, he reduced the twenty-five personality traits suggested by Charters and others[2] to fifteen traits. These were: buoyancy, considerateness, cooperativeness, dependability, emotional stability, ethicalness, expressiveness, flexibility, forcefulness, judgment, mental alertness, objectivity, personal magnetism, physical energy and drive, and scholarliness. Each of these traits consisted of many adjectives believed to be descriptive of the trait. From the point of view of defining a television teacher, many of these traits--cooperativeness, ethicalness, flexibility, judgment, mental alertness, objectivity, scholarliness, for example--were considered to be irrelevant as defined. The remaining traits were studied as potential sources of descriptive adjectives.

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[1] Charles E. Osgood, George J. Suci, and Percy H. Tannenbaum, The Measurement of Meaning (Urbana: University of Illinois Press, 1957).

The following adjectives in the Barr factors were selected for study: 1) from Buoyancy--enthusiasm, sense of humor, wittiness; 2) from Consideration--friendliness; 3) from Dependability--sincerity; 4) from Emotional Stability--poised, self-controlled, relaxed; 5) from Expressiveness--skill in communication; 6) from Forcefulness--confidence, aggressiveness; and 7) from Physical Energy and Drive--vigor and energy.

Ryans, a long-time student of teacher traits, identified three dimensions of teacher behavior, as measured by rating forms used in conjunction with direct observation.[3] He defined the first behavioral pattern exhibited by the teacher in a class as being warm, understanding, and responsive; the second as being responsible and systematic; and the third as stimulating and imaginative. In a later article summarizing behavior patterns, he added a fourth factor, a teacher being attractive, articulate, and confident.[1] Ryans pointed out, however, that these characteristics did not necessarily provide explanations of teacher behavior and that in many cases characteristics appeared to be specific to particular teacher populations. Gage added that neither these studies, nor others, have yet established definitive relationships between what teachers do and their pupils' achievement.[2] Although these behavioral patterns were developed as a consequence of observer ratings of teachers interacting with students, a number of adjectives were selected for further study: 1) from Warmth--friendly, warm, sincere; 2) from Systematic--instruction well organized; 3) from Stimulating--stimulating, active; and 4) from Attractiveness--communicative, impressive.

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[1] Barr, op. cit., p. 141.

[2] W. W. Charters and Douglas Waples, The Commonwealth Teacher-Training Study (Chicago: University of Chicago Press, 1929).

[3] David G. Ryans, Characteristics of Teachers: Their Description, Comparison, and Appraisal (Washington: American Council on Education, 1960).

An important study relative to this research was reported at Michigan State University, where attributes of a television "performer" were defined.[3] While the context in which the ratings were obtained was somewhat different than a formal teaching-learning situation, the problem of viewer perception of, and reaction to, a television personality appeared to be related. Six factors were tentatively isolated, with eight adjectives--presented in the form of semantic differential scales--used to tap the six dimensions. Two adjectives measured an "evaluative" aspect: easy-to-watch and friendly; two measured a "clarity-self identification" aspect: clear and common sense; and single adjectives measured four other dimensions: gay, personal, relaxed, and fast.

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[1] David G. Ryans "Research on Teacher Behavior in The Context of the Teacher Characteristics Study," Contemporary Research on Teacher Effectiveness, ed. Bruce J. Biddle and William J. Ellena (New York: Holt, Rinehart and Winston, 1964), pp. 67-101.

[2] N. L. Gage, "Research on Cognitive Aspects of Teaching," The Way Teaching Is (Washington: Association for Supervision and Curriculum Development and Center for the Study of Instruction, National Education Association, 1966), pp. 29-44.

[3] Dimensions of Viewer Preference for Selected ETV Programs, Progress Report No. 2 (East Lansing: Communications Research Center, Michigan State University, n.d., 1959). (Mimeographed.)

At Syracuse University, Myers performed an exploratory factor analysis of the twenty adjectives used in his earlier study of the experienced teacher on television.[1] Using data collected incidentally to the earlier research, he tentatively identified five factors, or teacher traits. The positive adjectives comprising these factors were presented to the students in the form of semantic differential scales with what were believed to be adjectival opposites. The five factors and corresponding scales with high loadings included the following: 1) "inspiration"--exciting-dull, inspiring-apathetic; 2) "potency"--brilliant-mediocre, vigorous-lifeless, enthusastic-not enthusiastic; 3) "expressiveness"--natural-affected, pleasant to listen to-unpleasant to listen to; 4) "composure"--relaxed-tense, confident-nervous; and 5) "evaluative"--a mixture of intimate-remote, personal-impersonal and profound-shallow, authoritative-superficial.

The research design for the work reported herein involved not only the selection of adjectives adequately reflecting teacher traits, but also adjectives which could be presented to students in either unidimensional or bidimensional scale form. Students were first to be asked to indicate their conceptions of an Ideal Teacher by checking on a ten-point scale the degree to which each adjective was important to the concept. Subsequently, students were to rate teachers in a variety of television teaching situations using semantic differential scales.

At Cortland State Teachers College in Cortland, New York (now SUNY at Cortland), Keating attempted to determine perceived attributes of an ideal speaker.[2] Students in speech classes were asked to list five adjectives describing an ideal speaker. Fifty students then selected the ten words on the master list that, in their opinion, best described a perfect speaker. Seven adjectives that were selected by at least 50 per cent of the students were incorporated into the final test instrument. They were, in descending order of selection: poised, organized, communicative, sincere, direct, confident, and interesting.

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[1] Myers, op. cit.

[2] Laurel Keating, "Characteristics of an Ideal Speaker," unpublished research notes.

Osgood, generally considered to be the father of the semantic differential approach to connotative thought processes, attempted to define a "Personality Differential" by semantic means. In his presidential address before the American Psychological Association, he described the preliminary results and noted that eight personality factors had been identified.[1] These personality factors were labeled as: 1) "Morality"--moral-immoral, reputable-disreputable; 2) "rationality"--logical-intuitive, objective-subjective; 3) "uniqueness"--unique-typical, unusual-usual; 4) "excitability"--excitable-calm, tense-relaxed; 5) "sociability"--gregarious-self-contained, sociable-solitary; 6) "toughness"--tough-tender, insensitive-sensitive; 7) "tangibility"--formed-amorphous, predictable-unpredictable; and 8) an undesignated factor that included proud-humble, sophisticated-naive, and deliberate-casual. One will note that most of these personality dimensions, or the scales from which they are derived, are based on hypothetical interrelations between people rather than in terms of observations independent of manifest behavior. Thus, while the factors identified by Osgood and Ware may have validity in certain interpersonal contexts, most seem irrelevant to the television teacher assessment problem.

Hoffman conducted a study involving persons responsible for selection of television teachers at educational television stations or in similar professional capacities.[2] He had prepared a list of 26 possible criteria for selection from conversations with practitioners. The most important criterion was the ability to communicate by television, and ability to organize materials was second. Both criteria may be subsumed as aspects of "personality," which was listed as a criterion of more than average importance, but not defined in any manner. Most of the other criteria deemed to be essential were concerned with a person's ability to work successfully in a television production rather than a classroom environment. Such factors are an important aspect of television teaching but do not appear to be related to any great extent to students' reactions to the television teacher.

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[1] Charles E. Osgood, "Studies on the Generality of Affective Meaning Systems," American Psychologist, XVII, No. 1 (1962), 10-28.

[2] Milton E. Hoffman, "The Successful TV Teacher," Newsletter (Lincoln, Nebr.: Great Plains Instructional Television Library, August, 1967).

Davis and Johnson have reported that faculty members involved in a television experience agreed that a good TV teacher should be "spontaneous, lively, and active."[1] Some thought it helped to be somewhat dramatic and, perhaps, even a "bit of a ham." Highet,[2] in discussing qualities of a great teacher, suggested a beautiful voice, a distinguished, mobile face, and graceful gestures. His references related to the presentation of a lecture, and thus have special relevance to the television lectures to be presented to college students during this research. To Highet, the single most important quality is delivery, which depends upon voice and gestures. A man who excels at communication can, in Highet's judgment, be an excellent teacher even if he is only a mediocre scholar. A first principle is, therefore, clarity.

Another chief duty of a teacher noted by Highet is to stimulate. In this observation, he is joined by others. Describing the lecture as a method of learning especially appropriate to a college, Rothstein describes how an "entertaining" lecture transcends appeals to the sensations; it evokes cognitive activity.[3] Britt declares that his duty as a professor of marketing and advertising is not to teach but to stimulate and excite students so that they get themselves involved in learning.[4] Years ago, Peterson argued that a lecture could--and should-- go beyond the mere imparting of information; that it might arouse, stimulate, give perspective on a subject, prepare the way for discussion, exhibit a mode of thought, present dramatically a movement of ideas, in a way no other method of teaching could do.[5] Goheen pointed out that every great teacher has his own unique manner. Yet, one attribute found in every successful teacher is an ability to awaken and stimulate delight in the use of the mind, thus engendering in students a raised awareness of the pleasure in intellectual activity.[1] A British teacher on BBC-TV was once reported to have said that the "ideal teacher would combine the qualities of Socrates, Christ, and Lawrence Olivier, but what authority could afford to pay?"[2] Rhodes surmised that successful television teachers would possess the distinctive attributes that shape any successful teacher --enthusiasm for, and knowledge of, the subject; a love of knowledge and learning; and a "communicable personality that is the subliminal conveyor of attitudes and sensitivity, the essence of true teaching."[3]

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[1] Robert H. Davis and F. Craig Johnson, Final Report: Evaluation of Regular Classroom Lectures Distributed by CCTV to Campus and Dormitory Classrooms (East Lansing: Educational Development Program, Michigan State University, n.d.).

[2] Highet, op. cit.

[3] Arnold Rothstein, "The Lecture and Learning," Bulletin of the American Association of University Professors, LII, No. 2 (June, 1966), 214-19.

[4] Steuart Henderson Britt, "What's Wrong With Advertising Education?" Marketing Highlights (March, 1966), p. 15.

[5] Houston Peterson, Great Teachers (New York: Vintage Books, 1946), p. 329.

As a final source of potential teacher trait scales, the personality needs factors defined and developed by Stern[4] and his associates were studied to determine the possible applicability in the television teaching context. These scales were to be used in the estimation of student personality characteristics. From this, and studies described previously, a final list of 44 adjectives was prepared. Thirty-nine of the adjectives were positive in connotative terms because of the concern for identifying outstanding teachers. Five negative adjectives, believed to be adjectival "opposites" of certain positive characteristics described by Stern's Activities Index, were included as a built-in reliability check of the instrument. To illustrate, students who indicated that "aggressive" was an important attribute for teachers should indicate that "timid" was an unimportant attribute, according to the AI theory.

Students were required to indicate the degree of importance they attached to each of the adjectives in describing an Ideal Teacher. The degree of importance of each adjective was indicated by circling one number on a ten-point scale ranging from zero (no importance) to nine (essential). Figure 1 is illustrative, and a copy of the rating scale, with directions, is included as Appendix A. Instructions were self-explanatory.

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[1] Robert F. Goheen, "The Teacher in the University," address delivered at Princeton University, January 12, 1966.

[2] Reported in Journal of Teacher Education, XIV, No. 4 (December, 1963), 371.

[3] Lewis A. Rhodes, "The Professional Training of ITV Personnel," speech delivered at NAEB Region III Seminar, Oxford, Ohio, March 22, 1965.

[4] George G. Stern, Activities Index--College Characteristics Index (Rev. ed.; Syracuse, N.Y.: Psychological Research Center, Syracuse University, 1963).

FIGURE 1

ILLUSTRATION OF UNIDIMENSIONAL TEACHER RATING SCALE

| | My Conception of an Ideal Teacher | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No Importance | | Some Importance | | | Very Important | | | Essential | |
| active | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| aggressive | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| . | . | . | . | . | . | . | . | . | . | . |
| . | . | . | . | . | . | . | . | . | . | . |
| withdrawn | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| witty | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 0 |

## Administration of Ideal Teacher Scales

More than five hundred students in seven sections of an introductory psychology course at Syracuse University initially assisted in the research. Permission was granted by the departmental chairman and, separately, six professors to use ten minutes of a class period to collect the data. Psychology classes were chosen because it was assumed that a cross-section of students representing many schools and colleges within the university would be enrolled in this essentially "elective" course. Data were collected during January and February, 1962. The sample was augmented in March and April with students from six sections of an introductory public address course which was selected both for broad representation and because of a minimum likelihood of duplication of students between the two courses. The 618 students who comprised the final sample also had AI personality needs scores on file with the Syracuse University Psychological Services Center.

The sample included 348 women and 270 men, of whom 508 were underclassmen and 110 were upperclassmen. Three hundred and seventy-one were in the College of Liberal Arts, 60 in Business Administration, 84 in Speech, 26 in Home

Economics, 20 in Art, 24 in Engineering, 4 in Forestry, and 29 in Nursing. Of probably greater interest in terms of representativeness was the determination that 144 students were "majoring" in science or engineering, 107 in the social sciences, 69 in the humanities, 147 in various professional areas, 109 in education, and 42 had not yet selected a major. Table 1 lists the specific major areas of study which were included within each broad academic category.

### TABLE 1

### DEPARTMENTS OR COURSES OF STUDY INCLUDED IN "MAJOR" ACADEMIC AREAS OF 618 STUDENTS RATING AN IDEAL TEACHER

Science, Engineering

- Accounting
- Audiology/Speech Pathology
- Bacteriology
- Biological Science
- Chemistry
- Diet Therapy
- Electrical Engineering
- Foods & Nutrition
- Forest Chemistry
- General Forestry
- Genetics
- Geology
- Industrial Engineering
- Laboratory Technician
- Mathematics
- Mechanical Engineering
- Nursing
- Physics
- Pre-Dentistry
- Pre-Medicine
- Veterinary
- Zoology

Social Science

- American Studies
- Anthropology
- Economics
- Family Relations
- History
- International Relations
- Latin American Studies
- Political Science
- Psychology
- Social Work

Education

- Art Education
- Education
- Elementary Education
- English Education
- Home Economics Education
- Mathematics Education
- Physical Education
- Science Education
- Special Education
- Speech Education

Professional

- Advertising
- Clothing-Textiles
- Fashion Merchandising
- Finance
- Illustration
- Industrial Design
- Interior Decorating
- Journalism
- Land Management
- Marketing
- Management
- Personnel
- Pre-Law
- Printing-Illustrating
- Production Management
- Transportation
- TV-Radio

Humanities

- Drama
- English
- French
- Interpretation
- Languages
- Philosophy
- Religion
- Speech
- Spanish

## Factor Analytic Procedure

Inasmuch as factor analysis was used to determine personality traits associated with students' conceptions of an Ideal Teacher, it may be appropriate to review briefly the theory and methodology of this mathematical procedure.

Factor analysis has as its objective the description of a large number of interrelated measurements by a smaller number of terms with the smallest possible residual error. In actuality, the factors are artificial measurements, not directly observable. They are usually independent. From this smaller number of dimensions, each individual's original scores can theoretically be reconstructed by adding together some proportion of his factor scores. The proportions, which must be the same for all individuals, are called factor loadings. Loadings will vary in size across dimensions. One is normally interested in determining those few measurements which have high loadings on the several factors and, thus, serve to "explain" the factors in psychologically meaningful terms.

The first step in factor analysis is to calculate a matrix of correlation coefficients between each pair of measurements. The kind of correlation coefficient to be computed is open to question. In the first problem of students' conceptions of an Ideal Teacher, each scale consisted of nine intervals varying from "no importance" to "essential" and scored from 1 to 9. Because respondents seemed to make use of the entire scale when indicating the degree of importance of each adjective in describing an Ideal Teacher, the range of answers was deemed sufficient to use Pearson product-moment correlation coefficients.

The next task in factor analysis is to represent the correlation matrix in terms of a limited number of factors. Although there is disagreement among practitioners as to the best method to accomplish the task of factor analysis, the Principal Axes method may be mathematically, if not psychologically, preferable in that it achieves a unique resolution of original measurements into uncorrelated factors with no subjective judgment involved.[1] The first axis is selected so that it explains as much as possible of the original variation between measurements. The next axis, or factor, perpendicular to the first, is selected so as to minimize the remaining variance, and so on.[1]

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[1] Gwyn Collins, "Factor Analysis," Journal of Advertising Research, I, No. 5 (1961), 28-32.

Having computed a factor matrix in which each factor accounts for a portion of the total variance among the original measurements, the next problem is, in Thurstone's words, "to discover the underlying functional unities"[2] which produce the observed measures in order, eventually, to describe individual differences in terms of these distinguishable functions. This is accomplished by "rotating" the axes so that each variable may be represented by the fewest possible factors. The procedure aids in identifying and analyzing the underlying processes in the factor structure. Called "simple structure," there are theoretically an unlimited number of solutions depending upon how one selects and rotates the factor axes relative to the original measurements.

A number of methods are available to accomplish this rotation with slightly different objectives and results. The equamax method, developed by Saunders, was used for this research.[3]

Ordinarily when a significant dimension, usually "evaluative" in character, permeates a correlation matrix, the first factor extracted is likely to account for a substantial portion of the total variation among measurements. The factoring procedure will also result in succeeding factors accounting for successively smaller portions of the total variance. The Equamax rotational program attempts to assure that all factors are of equal weight by redistributing the available variance in approximately equal proportions across the entire set of factors. The final output will be a set of orthogonally rotated factors expressing simple structure in which the order of extraction no longer has any significance.

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[1] In this problem, variables were factored according to the method described in D. R. Saunders, "The Contribution of Communality Estimation to the Achievement of Factorial Invariance, with Special Reference to the MMPI," Research Bulletin 60-5, Educational Testing Service, Princeton, N.J., April, 1960. (Mimeographed.)

[2] L. L. Thurstone, Multiple-Factor Analysis (Chicago: University of Chicago Press, 1947).

[3] D. R. Saunders, "Trans-varimax: Some Properties of the Ratiomax and Equamax Criteria for Blind Orthogonal Rotation," paper read at meeting of American Psychological Association in St. Louis, September 5, 1962.

The scales with the highest "loading" on each factor are normally selected (using some arbitrary cutoff point) to constitute, or describe, the factor. The factor loadings are, in reality, correlations between scale scores and the factor score. Being correlation coefficients, they cannot be used directly as proportions, or weights, to reconstitute an individual's score from his hypothetical factor scores. To effectuate this, Beta Weights are computed from the formula:

$$\beta = (R^{-1}F)$$

where the Beta Weights equal the product of the inverse of the correlation matrix ($R^{-1}$) and the factor matrix (F).

The Beta Weights making up the new matrix (size: 44 scales x 16 factors, in this instance) are proportions which may be used directly to convert scale scores to factor scores. As such they show in more precise fashion the contribution of each scale to each factor. In general, Beta Weights are preferred to Factor Loadings when selecting a small number of scales to represent each factor. For comparative purposes, Table 2 shows both the Factor Loadings and the Beta Weights computed for the various scales and factors in the Ideal Teacher matrix.

The Beta Weights are put to use as follows. One converts a person's score to a standard score, and then multiplies this standard score by its Beta Weight. The formula is:

$$x = [(s-u)/\sigma]\beta$$

where x is the factor score, S is the raw score, u is the scale mean, $\sigma^{S}$is the scale standard deviation, and $\beta$ is the Beta Weight. This procedure is used to provide individual factor scores for all analysis of variance computations carried out in this research.

TABLE 2

ROTATED FACTOR ANALYSIS OF IDEAL TEACHER TRAIT UNIDIMENSIONAL SCALES SHOWING EQUAMAX FACTOR LOADINGS AND BETA WEIGHTS,[a] (N = 618)

| Scale | Factor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1 |  | 2 |  | 3 |  | 4 |  | 5 |  | 6 |  | 7 |  | 8 |  | 9 |  | 10 |  |
|  | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β |
| 1. Active | 081 | -099 | 070 | -065 | 134 | 085 | 078 | 026 | 070 | -025 | 023 | -147 | 071 | 012 | 583 | 746 | -039 | -050 | -019 | -076 |
| 2. Aggressive | -036 | -107 | -017 | 010 | 029 | -087 | 069 | -058 | 014 | -190 | 104 | 119 | 014 | -037 | 413 | 357 | 003 | -102 | -049 | -306 |
| 3. Assertive | -029 | -037 | 081 | 055 | 066 | -006 | 050 | 177 | -101 | -141 | 069 | 036 | 100 | 043 | 225 | 050 | 019 | 052 | 062 | -007 |
| 4. Authoritative | 019 | 270 | -033 | -020 | -001 | -140 | -056 | -110 | 129 | 221 | -046 | -133 | 018 | -137 | -086 | -313 | 040 | -011 | 051 | 053 |
| 5. Brilliant | -031 | 071 | 003 | -069 | 164 | -054 | 024 | -058 | 130 | 081 | -152 | -376 | 108 | 063 | -021 | -143 | 063 | -036 | 328 | 358 |
| 6. Clear | 001 | 141 | 134 | -130 | 017 | -184 | -035 | -093 | -040 | -076 | -120 | -269 | 091 | -109 | -027 | -002 | -046 | -047 | -036 | 012 |
| 7. Colorful | -020 | -140 | 051 | -314 | 455 | 439 | 146 | 100 | 110 | -090 | 093 | 196 | 028 | -090 | 037 | -097 | 052 | 021 | 092 | -019 |
| 8. Communicative | 059 | 070 | 119 | -210 | 123 | 117 | -029 | 007 | 027 | 058 | 128 | 134 | 207 | -072 | 103 | 051 | -031 | 011 | 049 | 111 |
| 9. Confident | 038 | -166 | 060 | 031 | 070 | 006 | 044 | 059 | 125 | 119 | 152 | 053 | 581 | 687 | 034 | -160 | -002 | 026 | 082 | -110 |
| 10. Controlled | 113 | 008 | 012 | -047 | 018 | -017 | 026 | -057 | 003 | -068 | 041 | -184 | 575 | 642 | 095 | 070 | 054 | 005 | 119 | 037 |
| 11. Definite | 018 | 012 | -002 | -053 | 002 | -152 | 046 | 004 | 044 | -029 | -027 | -185 | 358 | 188 | 013 | -037 | 044 | 011 | 034 | -113 |
| 12. Demonstrative | 027 | 025 | 042 | -008 | 069 | -090 | 093 | -031 | 122 | -035 | 073 | 061 | 090 | -170 | 051 | -079 | 057 | -056 | 084 | -117 |
| 13. Direct | 088 | 045 | 150 | -035 | 234 | 177 | 035 | -033 | 024 | -130 | 158 | 145 | 131 | -193 | 053 | -057 | -029 | -045 | 044 | -117 |
| 14. Dynamic | 026 | -155 | 142 | -124 | 591 | 563 | 087 | 081 | 031 | -201 | 073 | -015 | 042 | -101 | 199 | -118 | 017 | 023 | 281 | 194 |
| 15. Easy to take notes | 046 | -059 | -053 | -129 | 096 | 010 | 107 | -094 | 055 | -122 | 074 | -108 | 083 | -048 | -037 | 068 | 061 | 002 | 023 | 023 |
| 16. Effective | 020 | -139 | 291 | 137 | 153 | 056 | 003 | 068 | 145 | 209 | 087 | -036 | 125 | 020 | 031 | -014 | 022 | 113 | 054 | 061 |
| 17. Enthusiastic | 339 | 263 | 338 | 135 | 355 | 255 | -049 | -053 | 137 | 041 | 071 | -137 | 170 | 113 | 245 | 161 | 046 | 015 | 029 | -078 |
| 18. Exciting | 115 | -019 | 227 | 076 | 603 | 505 | 060 | -110 | 220 | 009 | 009 | -100 | 052 | 071 | 138 | -007 | 072 | -014 | 123 | -074 |
| 19. Friendly | 541 | 426 | 130 | -063 | 250 | 153 | 355 | 097 | 233 | 052 | 151 | -076 | 097 | 025 | 034 | -159 | 049 | -038 | -165 | -255 |
| 20. Gay | 281 | 136 | -012 | -091 | 260 | 108 | 200 | -214 | 468 | 301 | 119 | -060 | 071 | 083 | 142 | 023 | 095 | -086 | -078 | -286 |
| 21. Graceful | 131 | -024 | -047 | -157 | 120 | 001 | 148 | -139 | 543 | 539 | 184 | 052 | 083 | -009 | 117 | 034 | -005 | -120 | 121 | 046 |
| 22. Impressive | 037 | -174 | 185 | 146 | 092 | -171 | 126 | 100 | 599 | 789 | 080 | -123 | 058 | -003 | 086 | -075 | 059 | 088 | 136 | 097 |

TABLE 2--Continued

| Scale | Factor |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 11 |  | 12 |  | 13 |  | 14 |  | 15 |  | 16 |  |
|  | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β |
| 1. Active | 004 | -158 | -025 | -273 | 032 | 116 | 026 | 174 | 052 | 009 | 108 | -080 |
| 2. Aggressive | 030 | 019 | 219 | 289 | 188 | 264 | -078 | -193 | 031 | 055 | 411 | 336 |
| 3. Assertive | -044 | -255 | 014 | -114 | -027 | -105 | -030 | -084 | 083 | 043 | 584 | 703 |
| 4. Authoritative | 154 | 137 | -015 | -172 | 015 | -130 | 102 | 095 | -029 | -167 | 529 | 765 |
| 5. Brilliant | 094 | -164 | 256 | 217 | 065 | -051 | 118 | 138 | 122 | 172 | 197 | 153 |
| 6. Clear | 136 | -108 | 113 | 322 | -047 | 036 | 221 | 178 | 503 | 720 | 023 | -053 |
| 7. Colorful | 086 | -102 | 253 | 139 | 079 | 029 | 058 | -208 | 273 | 490 | 094 | -049 |
| 8. Communicative | 162 | 006 | -158 | -346 | 020 | 138 | -003 | -370 | 467 | 712 | 052 | -038 |
| 9. Confident | 144 | -125 | 075 | 159 | -012 | -118 | 029 | -293 | 188 | 014 | 140 | 056 |
| 10. Controlled | 158 | -153 | -015 | -010 | 051 | 031 | 155 | 156 | 117 | -124 | 058 | -064 |
| 11. Definite | 518 | 563 | 045 | 110 | -015 | -100 | 246 | 068 | 187 | -099 | 088 | -029 |
| 12. Demonstrative | 466 | 727 | 150 | 170 | 189 | 204 | 036 | -435 | 166 | 128 | 080 | -048 |
| 13. Direct | 532 | 715 | -057 | -241 | -017 | 017 | 231 | -019 | 141 | -192 | 132 | 056 |
| 14. Dynamic | 224 | 044 | 125 | -243 | -075 | -131 | 212 | 251 | 061 | -176 | 160 | -001 |
| 15. Easy to take notes | 136 | -222 | 069 | -041 | 084 | 030 | 552 | 1008 | 118 | -114 | 040 | -031 |
| 16. Effective | 116 | -120 | -091 | -300 | -094 | -180 | 222 | 215 | 207 | 037 | 065 | 044 |
| 17. Enthusiastic | 093 | -008 | -007 | -165 | -027 | 055 | 058 | -054 | 092 | -112 | -014 | -097 |
| 18. Exciting | 109 | -015 | 242 | 076 | 051 | 034 | 090 | -040 | 032 | -160 | 036 | -109 |
| 19. Friendly | 036 | -175 | 112 | -032 | 135 | -046 | 136 | -062 | 107 | 155 | 001 | 083 |
| 20. Gay | 013 | -154 | 277 | 141 | 277 | 173 | 180 | 180 | -060 | -137 | 109 | 067 |
| 21. Graceful | 111 | 012 | 133 | -168 | 246 | 138 | 110 | 003 | -026 | -015 | 003 | -087 |
| 22. Impression | 098 | -055 | 109 | -179 | 047 | -251 | 075 | -151 | 087 | 075 | 086 | 072 |

TABLE 2--Continued

| Scale | Factor | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | |
| | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β |
| 23. Impulsive | -064 | -307 | 099 | 351 | 086 | -026 | 208 | 165 | 176 | 006 | -065 | -159 | 060 | 186 | 070 | 025 | 186 | 001 | 066 | -177 |
| 24. Inhibited | 025 | -034 | 016 | 084 | 011 | 008 | 145 | -024 | 120 | -038 | -027 | -026 | -097 | -181 | 049 | 119 | 304 | 054 | -007 | -063 |
| 25. Inspiring | 161 | -054 | 604 | 628 | 104 | -146 | 088 | 053 | 068 | -050 | 079 | -208 | 121 | 115 | 104 | -029 | -017 | -059 | 111 | -048 |
| 26. Interesting | 016 | -086 | 543 | 448 | 121 | -140 | 038 | -024 | 105 | 008 | 194 | 064 | 047 | -039 | 027 | -148 | -004 | 039 | -007 | -198 |
| 27. Intimate | 153 | -132 | -032 | 020 | 056 | -088 | 549 | 592 | 195 | 017 | 043 | -162 | -016 | -070 | 113 | 020 | 113 | 035 | 116 | 050 |
| 28. Natural | 263 | -099 | 138 | 047 | 065 | 013 | 335 | 320 | 062 | -112 | 321 | 214 | 270 | 256 | 125 | -011 | -013 | 049 | 023 | -146 |
| 29. Organized | -010 | -303 | 252 | 104 | -111 | -225 | 117 | 124 | 056 | 010 | 229 | 084 | 179 | 028 | 211 | 322 | -044 | 035 | 001 | -040 |
| 30. Personal | 178 | -204 | 036 | 025 | 081 | 023 | 656 | 808 | 105 | -096 | 111 | -120 | 077 | 018 | 057 | -029 | -011 | -053 | 132 | 128 |
| 31. Pleasant to Listen to | 136 | -059 | 166 | -046 | 074 | -101 | 141 | -145 | 210 | 000 | 425 | 426 | -040 | -278 | 046 | -095 | -015 | -026 | 060 | -125 |
| 32. Poised | 121 | -165 | 093 | -163 | 057 | 008 | 096 | -065 | 261 | 195 | 557 | 621 | 158 | -031 | 130 | -045 | -010 | 071 | 265 | 170 |
| 33. Profound | 051 | 036 | 136 | 052 | 124 | 068 | 083 | 011 | 025 | -097 | 129 | -000 | 095 | 015 | -046 | -216 | -009 | -132 | 545 | 627 |
| 34. Relaxed | 254 | -009 | 177 | 062 | 093 | 088 | 093 | -217 | 022 | -280 | 515 | 524 | 282 | 237 | 084 | -096 | -037 | -086 | 100 | -187 |
| 35. Restrained | 056 | 135 | -073 | -149 | -050 | -022 | 032 | -295 | 027 | -171 | 095 | 050 | 082 | -051 | -025 | 021 | 204 | -082 | 216 | 262 |
| 36. Sincere | 526 | 620 | 185 | -031 | 015 | -141 | 141 | -094 | 015 | -100 | 144 | -164 | 165 | -050 | 130 | -025 | 036 | -020 | 196 | 251 |
| 37. Sociable | 491 | 496 | 045 | -091 | 041 | -172 | 278 | -138 | 165 | -086 | 135 | -211 | 115 | 003 | 112 | -015 | 079 | -092 | 090 | 024 |
| 38. Stimulating | 158 | 005 | 572 | 430 | 172 | -051 | 024 | -024 | 056 | -044 | 196 | -028 | -025 | -207 | 138 | 005 | -055 | -025 | 261 | 209 |
| 39. Strong | 038 | -144 | -023 | -121 | 060 | -090 | 157 | 068 | 182 | 083 | 143 | -017 | 123 | 037 | 238 | 204 | 070 | 053 | 373 | 345 |
| 40. Timid | 025 | -088 | -034 | -033 | 035 | 006 | 005 | 004 | 047 | 043 | -005 | 121 | -009 | -025 | 014 | 043 | 694 | 721 | -004 | -090 |
| 41. Vigorous | 206 | 197 | 046 | -126 | 012 | -317 | -009 | -279 | 157 | 041 | 114 | -131 | 026 | -145 | 497 | 472 | 068 | 078 | 350 | 266 |
| 42. Warm | 480 | 343 | 100 | -147 | 092 | -089 | 365 | 210 | 159 | -002 | 322 | 173 | -031 | -309 | 177 | -042 | 124 | 170 | 124 | 082 |
| 43. Withdrawn | 030 | -046 | 009 | 068 | 011 | -010 | 013 | 015 | -036 | -086 | -014 | -084 | 053 | 062 | -042 | -068 | 704 | 665 | 077 | 035 |
| 44. Witty | 067 | -106 | 068 | 055 | 215 | 009 | 152 | -042 | 096 | -185 | 130 | 086 | 002 | 068 | 053 | -127 | 079 | 016 | 193 | -058 |

TABLE 2--Continued

| Scale | Factor 11 |  | 12 |  | 13 |  | 14 |  | 15 |  | 16 |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Load | β | Load | β | Load | β | Load | β | Load | β | Load | β |
| 23. Impulsive | 150 | 239 | 215 | 210 | 328 | 244 | 003 | -163 | -144 | -369 | 041 | -082 |
| 24. Inhibited | 059 | 134 | 016 | -168 | 510 | 576 | -000 | -097 | -019 | 083 | -013 | -101 |
| 25. Inspiring | 090 | -008 | 091 | 145 | 069 | 141 | 098 | -118 | 157 | -105 | 019 | -026 |
| 26. Interesting | 075 | -069 | 162 | 323 | -025 | -011 | 160 | -103 | 307 | 191 | 058 | 039 |
| 27. Intimate | 100 | 079 | 214 | -033 | 198 | -110 | 105 | -029 | -067 | -051 | 066 | 042 |
| 28. Natural | 088 | -019 | 095 | 050 | -020 | -172 | 113 | -115 | 063 | -079 | -041 | -100 |
| 29. Organized | 127 | -144 | -065 | -146 | 006 | 008 | 306 | 397 | 270 | 145 | -008 | -145 |
| 30. Personal | 068 | -065 | 098 | -238 | 182 | -065 | 156 | -005 | 024 | -034 | 002 | -019 |
| 31. Pleasant to listen to | 143 | 039 | 240 | 231 | 094 | 034 | 305 | 237 | 137 | 084 | 098 | 056 |
| 32. Poised | 078 | -090 | 078 | -164 | 033 | -095 | 105 | -099 | 078 | 087 | 053 | -024 |
| 33. Preferred | 008 | -159 | 093 | -154 | 209 | 242 | -021 | -142 | -008 | 043 | 081 | 049 |
| 34. Relaxed | 119 | 039 | 128 | 165 | 116 | 179 | 180 | 068 | -055 | -384 | 067 | 004 |
| 35. Restraining | 006 | -165 | 013 | 161 | 530 | 700 | 106 | 195 | 029 | 169 | 057 | -021 |
| 36. Sincere | 113 | 115 | -002 | -135 | 018 | 014 | 029 | -160 | 073 | 101 | -036 | 004 |
| 37. Sociable | 042 | -099 | 237 | 191 | 198 | 118 | 222 | 281 | -027 | -055 | 051 | 076 |
| 38. Stimulating | 130 | 037 | 029 | -135 | -052 | -011 | 175 | 100 | 120 | -131 | 078 | 060 |
| 39. Strong | 126 | -028 | 199 | -004 | 052 | -134 | 099 | 123 | -035 | -061 | 042 | -118 |
| 40. Timid | 013 | -055 | 037 | -055 | 091 | -275 | 049 | 061 | -006 | 050 | 009 | -131 |
| 41. Vigorous | 161 | 165 | 338 | 363 | -112 | -240 | 005 | 009 | -012 | 032 | 022 | -178 |
| 42. Warm | 114 | 158 | 155 | -074 | -031 | -302 | 079 | -192 | 045 | 158 | 031 | 078 |
| 43. Withdrawn | 008 | -055 | 036 | -045 | 187 | -124 | -009 | -066 | -037 | 000 | 053 | 033 |
| 44. Witty | 018 | -070 | 519 | 764 | 053 | -081 | 062 | -063 | -006 | -012 | 036 | -082 |

[a] All figures should be multiplied by $10^{-3}$.

## Discussion of Preliminary Results

The procedures described above produced results that considerably exceeded expectations. An unusually large number of positive factors--14--describing an Ideal Teacher were tentatively identified from the factor analysis. In addition two negative factors appeared. Table 3 summarizes each factor, extracting those scales shown in Table 2 to be the principal contributors to the several factors.

TABLE 3

BETA WEIGHTS OF ADJECTIVAL SCALES WHICH ARE PRINCIPAL CONTRIBUTORS TO IDEAL TEACHER FACTORS

| Factor | Scale | Weight |
|---|---|---|
| Factor 1--FRIENDLINESS | Sincere | 620 |
| | Sociable | 496 |
| | Friendly | 426 |
| | Warm | 343 |
| Factor 2--STIMULATION | Inspiring | 628 |
| | Interesting | 448 |
| | Stimulating | 430 |
| Factor 3--DYNAMISM | Dynamic | 563 |
| | Exciting | 505 |
| | Colorful | 439 |
| Factor 4--INTIMACY | Personal | 808 |
| | Intimate | 592 |
| | Natural | 320 |
| Factor 5--STYLE | Impressive | 789 |
| | Graceful | 539 |
| Factor 6--COMPOSURE | Poised | 621 |
| | Relaxed | 524 |
| | Pleasant to listen to | 426 |
| Factor 7--CONTROL | Confident | 687 |
| | Controlled | 642 |
| Factor 8--ACTIVITY | Active | 746 |
| | Vigorous | 472 |
| | Assertive | 357 |
| | Organized | 322 |
| Factor 9--TIMIDITY | Timid | 721 |
| | Withdrawn | 665 |
| Factor 10--PROFUNDITY | Profound | 627 |
| | Brilliant | 358 |
| | Strong | 345 |
| Factor 11--DIRECTNESS | Demonstrative | 727 |
| | Direct | 715 |
| | Definite | 563 |
| Factor 12--WIT | Witty | 764 |
| | Vigorous | 363 |
| | Clear | 322 |
| Factor 13--RESTRAINT | Restrained | 700 |
| | Inhibited | 576 |
| Factor 14--ORGANIZATION | Easy to take noted | 1008 |
| | Organized | 397 |
| Factor 15--COMMUNICATION | Clear | 720 |
| | Communicative | 712 |
| | Colorful | 490 |
| Factor 16--ASSERTIVENESS | Authoritative | 765 |
| | Assertive | |
| | Aggressive | |

The two negative factors (Factor 9: timid, withdrawn; and Factor 13: restrained, inhibited) consist of combinations of the negative adjectives for four scales that were deliberately inserted into the instrument as validity checks, and are obviously of little value in predicting positive attributes of teacher personality. The names assigned to the factors are tentative, although one will note aspects of Osgood's "activity" and "potency" dimensions of meaning in Factor 3 (dynamic, exciting) and Factor 8 (active, vigorous) as well as several factors apparently related to the "evaluative" dimension (Factor 1: sincere, sociable, friendly; Factor 2: inspiring, interesting, stimulating; Factor 10: profound, brilliant.)

The adjective, strong, did not appear as a major contributory scale for any factor and appeared to connote both a mental and physical meaning when used independently in a scale without benefit of a verbal opposite. The decision was therefore made, for subsequent experiments, to use a "strong--weak" semantic differential scale twice and a "forceful--weak" scale in other instances.

Since the 618 students were required to indicate the degree of importance of each adjective, the relative importance of each factor was determined by computing the average factor scores. Table 4 lists the factors, main contributory adjectives, and scores of each. One will note that "communication" (Factor 15: clear, communicative) is considered of greatest importance while the two negative factors are of no practical importance. The decision was therefore made to exclude the two negative factors from further consideration, but to retain all others for further refinement and application in actual television teaching situations.

## Preparation, Presentation, and Assessment of Experimental Television Lectures

The second phase of the project was concerned with the refinement of the teacher trait scale by applying it to a number of television teaching situations. The procedure was to present to students enrolled in one of several Syracuse University courses a television lecture by an outstanding teacher, and to proceed and follow each lecture with appropriate psychological measurements. For this experimental television teaching phase, the thirty-nine positive teacher trait adjectives previously selected for

## TABLE 4

## DEGREE OF IMPORTANCE OF IDEAL TEACHER COMPOSITE FACTOR SCORES

| Factor | Average Score<br>Base=9 | <br>Base=100 | Description | Degree of Importance |
|---|---|---|---|---|
| 15 | 8.4514 | 93.14 | Clear-Communicative | Essential |
| 2 | 7.4380 | 80.48 | Inspiring-Stimulating-Interesting | Essential |
| 11 | 6.9790 | 74.74 | Direct-Definite | Very Important |
| 7 | 6.9522 | 74.40 | Confident-Controlled | Very Important |
| 16 | 6.4822 | 68.53 | Assertive-Authoritative | Very Important |
| 14 | 6.3414 | 66.77 | Easy to Take Notes | Very Important |
| 6 | 5.9571 | 61.96 | Poised-Relaxed | Very Important |
| 3 | 5.8107 | 60.13 | Exciting-Dynamic | Very Important |
| 1 | 5.5894 | 57.37 | Friendly-Sincere-Sociable | Very Important |
| 8 | 5.5575 | 56.97 | Active-Vigorous | Very Important |
| 12 | 4.9790 | 49.74 | Witty | Some Importance |
| 10 | 4.4417 | 43.02 | Profound-Brilliant | Some Importance |
| 4 | 3.8345 | 35.43 | Personal-Intimate | Some Importance |
| 5 | 3.8098 | 35.12 | Impressive-Graceful | Some Importance |
| 13 | 2.7532 | 21.92 | Restrained-Inhibited | No Importance |
| 9 | 1.6578 | 8.22 | Withdrawn-Timid | No Importance |

the ideal teacher experiment were converted into bi-polar semantic differential scales. These appear, with the original instructions for their completion, as Appendix B.

Four lectures involving different academic departments were recorded on kinescope for later experimental use. Two kinescope lectures featuring professors from other universities were also included in the tests. And, in a final comparison, seven teachers in one department were studied. From these lectures, and the concurrent evaluations, television teacher semantic scale scores were obtained for five factor analyses. Each experiment was conducted independently of the others, and each introduced certain comparisons unique to the experiment and certain comparisons common to all.

### Experiment 1--Professor Benjamin Burtt

The first kinescope presented Dr. Benjamin Burtt, Professor of Chemistry at Syracuse University. Dr. Burtt lectured on "Kinetic-Molecular Theory." The presentation was the second in the introductory course taught by the chemistry department. Dr. Burtt has for many years been in charge of this freshman course, and his experience has convinced him that freshman students need a great deal of guidance in learning what to learn. He tries to serve as their guide by writing copious notes on the blackboard, outlining his lecture in considerable detail. For the television lecture, Dr. Burtt presented his lesson in exactly the same manner as he would in the lecture hall, including the detailed blackboard outline. The cameras, therefore, served essentially as reporters rather than editors. There were two exceptions to the "televised lecture" approach. First, Dr. Burtt directed his attention to the camera. The camera, in other words, did not take the role of a student in the lecture room surveying the scene as any other student; rather, the camera became the only student in the room and Dr. Burtt taught the camera.

The distinction between individual and group communication is crucial and this approach to the televised lecture may be seen in the photographs comprising Appendix D.[1] It is the approach most often used when the lesson is presented and distributed from a television studio to a student audience rather than being presented in a lecture hall and distributed by television to students in other locations.

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[1] The photographs were reproduced from single frames of the 16mm kinescope recording, and are arranged in chronological order.

The second exception in production occurred when unusual camera perspectives were utilized to highlight demonstrations of molecular attraction and molecular pressure. Appendix D includes a picture of a steel ball rolling between two wooden blocks, and a picture of a crumpled can. The first shot permitted all students to see the demonstration from a vantage point impossible in the lecture hall. The second shot allowed all students to have a close-up view of the experiment.

The kinescoped lecture was presented first at 8:00 A. M. on September 28, 1963 to 233 students. Most of the students in this section were freshmen in the College of Forestry. The lecture was distributed to the chemistry lecture room in Bowne Hall on the university campus from the Television Center in the Main Library by means of coaxial cable. Four 23-inch television receivers were installed for the experiment. Two were placed at the front of the room behind the large lecture desk in the area usually occupied by the teacher. Students in the front row of seats were approximately nine feet from the monitors and below picture level. The rows of seats in the lecture-auditorium were sharply banked. Students in the fourth row observed the monitors approximately at eye level. Students in the tenth row were several feet above the monitors and approximately 25 feet from them. The room was so constructed that at this level a small walkway separated the first tier of seats from the second tier. Two additional monitors were placed at this level on the walkway at either side of the room. Students seated in the second tier could watch these monitors. Again, students in the nearest rows were located below monitor picture level and a few feet away, while those in the last row of the lecture hall were several feet above picture level and approximately 25 feet away. Thus, students receiving the television instruction were afforded approximately the same "view" of the teacher whether located in the front or rear of the room.

The television lesson was repeated the same day at 11:00 A. M. under the same circumstances to 242 students. The timing, administration of tests, and lesson presentation were identical.

At 1:00 P. M. on the same day, a third section of 231 students received their lecture on "Kinetic-Molecular Theory." It must be noted that students in the university were permitted to enroll in either the 11:00 A. M. or 1:00 P. M. section, depending upon their total academic schedule. Scheduling procedures mitigated against complete random assignment to sections at registration. In some instances students could sign for one or the other on a preferential basis. In other instances, conflicts precluded a free choice. In still other instances students were asked to register for a specific section in order to maintain approximately equal numbers in each section. It is possible, therefore, to argue against the validity of data obtained with imperfect control of subjects and classes. Whether some unknown psychological factor might have influenced those few students who had a free choice to select one section over the other is not known. That the two sections were composed of students with approximately equivalent characteristics may be seen from studying Table 5.

TABLE 5

COMPARISON OF CHEMISTRY SECTIONS ON SELECTED CHARACTERISTICS

| | | Section | | | |
|---|---|---|---|---|---|
| Characteristic | Category | #2 11:00AM | | #3 1:00PM | |
| | | N | % | N | % |
| 1. Sex | Male | 199 | 82.2 | 184 | 79.7 |
| | Female | 43 | 17.8 | 47 | 20.3 |
| 2. Year in School | Freshman | 227 | 93.8 | 211 | 91.4 |
| | Sophomore | 11 | 4.6 | 16 | 6.9 |
| | Junior/Senior | 4 | 1.6 | 4 | 1.7 |
| 3. School or College | Liberal Arts | 163 | 67.4 | 148 | 64.1 |
| | Engineering | 78 | 32.2 | 74 | 32.0 |
| | Forestry | 1 | .4 | 9 | 3.9 |
| 4. Major Area of Study | Science, Engineering | 179 | 74.0 | 167 | 72.3 |
| | Social Science | 6 | 9.1 | 7 | 7.3 |
| | Humanities | 3 | | 6 | |
| | "Professional" | 12 | | 3 | |
| | Education | 1 | | 1 | |
| | Undecided/Unknown | 41 | 16.9 | 47 | 20.4 |

The class lecture was nearly identical with the television lecture. Professor Burtt erased the blackboards himself in the lecture hall, whereas on television they had been mysteriously cleaned as if by Bishop Fulton Sheen's "angel." The classroom lecture deviated in one small--but apparently significant, as will be seen later--way from the television lecture. As part of his demonstration of molecular attraction, Professor Burtt rolled a steel ball down an inclined plane past a magnet and through a gate (see Appendix D). On the first trial in the lecture hall, the ball missed the gate, causing some spontaneous laughter from the students. Burtt observed that sometimes experiments do not work correctly the first time and that repeated trials were part of any scientific experimentation. Making an adjustment, the demonstration was repeated successfully and the lecture continued. In the television version of the lecture, the experiment succeeded the first time. Otherwise, a comparative analysis of sound tracks (Professor Burtt recorded his classroom lecture) plus personal observation of the lectures showed no further significant variations in the performance of the professor or in the reactions of students. The class lecture was concluded within one-half minute of the television lecture. Test administration, as previously, was completed without incident.

From the chemistry lesson experiment, therefore, 475 students saw Professor Burtt on television, and 231 saw him present the same lecture in the lecture hall. These 706 students then rated Professor Burtt on the 39 semantic differential scales shown in Appendix B, and their ratings formed the basis for the second factor analysis of teacher traits. Utilizing the same factor analysis and rotation programs as previously used with the Ideal Teacher problem, the scales were factored and rotated. The procedure yielded 15 Teacher Trait factors. The Beta weights are shown in Table 6.

### Experiment 2--Professors Frank Funk and Irving Lee

The second experimental kinescope was prepared by Dr. Frank Funk, who was Assistant Professor and Chairman of the Department of Public Address at Syracuse University at the time. His lecture on the topic, "Physical Behavior,"

TABLE 6

BETA WEIGHTS$^a$ COMPUTED FROM ROTATED FACTOR ANALYSIS OF TEACHER TRAIT ADJECTIVAL SEMANTIC DIFFERENTIAL SCALES FOR PROFESSOR BEN BURTT LECTURE ON "KINETIC-MOLECULAR THEORY" (N = 706)

| Scale | Factor | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | sti | dyn | con | nat | fri | int | for | ctl | pro | ass | comm | comp | wit | dir | org |
| Active-Passive | 056 | 567 | 175 | 008 | -097 | -076 | -181 | 182 | -029 | 306 | 106 | -148 | -082 | -570 | 001 |
| Aggressive-Timid | 144 | -279 | 172 | -314 | -026 | -013 | -068 | -063 | -112 | 851 | -135 | -075 | 024 | 188 | -019 |
| Assertive-Restrained | 060 | -130 | -184 | 111 | 134 | -004 | 025 | -432 | -230 | 791 | 009 | 027 | -000 | 035 | 019 |
| Authoritative-Superficial | -121 | -154 | -126 | -100 | 008 | -018 | -218 | -210 | -127 | 098 | -123 | 038 | 144 | 1053 | 097 |
| Brilliant-Mediocre | -194 | 254 | -058 | 241 | 136 | -043 | -129 | -065 | 950 | -189 | 014 | -063 | -289 | -159 | -418 |
| Clear-Hazy | -084 | -000 | 335 | -345 | 078 | -103 | 004 | 017 | -058 | -032 | 480 | -482 | 090 | 175 | 267 |
| Colorful-Colorless | -117 | -129 | -282 | 157 | -213 | -135 | 529 | 651 | -078 | -316 | 345 | 092 | 257 | -174 | -395 |
| Communicative-Inarticulate | -096 | 062 | -247 | 094 | -135 | 095 | -084 | -079 | 203 | -086 | 791 | 044 | -014 | -123 | -159 |
| Confident-Nervous | 008 | 097 | 838 | -006 | -289 | -004 | -121 | 184 | 036 | -089 | -333 | 126 | -082 | -159 | -019 |
| Controlled-Impulsive | 058 | 066 | 059 | -003 | -147 | 025 | -057 | 427 | -152 | -022 | 008 | 035 | -373 | 104 | 004 |
| Definite-Uncertain | -104 | -203 | 005 | -028 | 058 | -004 | -070 | 125 | -151 | -015 | 215 | -068 | -082 | 756 | -266 |
| Demonstrative-Withdrawn | -117 | -311 | 099 | -040 | -112 | 063 | -146 | -203 | 951 | 137 | 072 | -105 | 097 | -194 | 061 |
| Direct-Evasive | -015 | -104 | -173 | -078 | 167 | -133 | 049 | -124 | 066 | -008 | -279 | 082 | -047 | -091 | 950 |
| Dynamic-Static | -260 | 696 | -084 | 162 | -282 | 022 | 046 | -063 | -124 | -174 | -291 | 344 | 037 | -012 | 177 |
| Easy (Hard) to Take Notes | -151 | 133 | -033 | -062 | -071 | -010 | -018 | -168 | -069 | -069 | -073 | -014 | 194 | 041 | 634 |
| Effective-Ineffective | -157 | -003 | -121 | 847 | -272 | -067 | -170 | 117 | 042 | -252 | -029 | -141 | 164 | 196 | 094 |
| Enthusiastic-Not Enthusiastic | -240 | 094 | 012 | -217 | 683 | -183 | 287 | -307 | 044 | 145 | -037 | -336 | 006 | 107 | 070 |
| Exciting-Dull | 348 | 143 | 069 | -127 | -082 | -121 | 510 | 170 | -324 | -110 | -134 | 021 | -039 | -313 | 119 |
| Forceful-Weak | -145 | 075 | -047 | -021 | 001 | 059 | 639 | -083 | -412 | 258 | 075 | 142 | -141 | -005 | -165 |
| Friendly-Hostile | -086 | -154 | -117 | -135 | 664 | 014 | -035 | 075 | -005 | -226 | -072 | -119 | 131 | -001 | 291 |

TABLE 6--Continued

| Scale | Factor | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | sti | dyn | con | nat | fri | int | for | ctl | pro | ass | comm | comp | wit | dir | org |
| Gay-Solemn | -074 | -072 | 044 | -186 | 103 | -044 | -243 | -278 | -088 | -052 | -231 | 010 | 835 | 215 | 428 |
| Graceful-Awkward | -176 | -222 | -085 | -136 | -176 | -176 | 276 | 674 | 225 | -256 | -194 | 307 | -039 | 101 | 051 |
| Impressive-Unimpressive | 536 | -414 | -234 | 178 | 125 | -146 | 282 | -002 | -185 | 160 | -219 | 238 | -021 | -204 | 049 |
| Inspiring-Apathetic | 153 | 334 | 167 | -269 | -177 | 056 | -444 | -027 | 206 | -176 | -160 | -187 | -037 | 570 | 155 |
| Interesting-Boring | 827 | -288 | 102 | 008 | -132 | 107 | -121 | -000 | -255 | 278 | 289 | -011 | -031 | -249 | -368 |
| Intimate-Remote | -076 | -048 | -015 | -103 | -007 | 682 | -192 | 073 | -209 | -037 | 068 | -009 | -100 | 484 | -225 |
| Natural-Affected | -034 | 127 | 196 | 587 | -021 | 057 | -244 | -091 | 050 | 023 | -241 | 192 | -134 | -287 | -031 |
| Organized-Unorganized | 049 | -063 | -143 | -081 | 004 | 015 | -017 | -023 | -091 | -034 | 548 | 096 | -042 | 004 | -058 |
| Personal-Impersonal | 065 | -163 | 111 | -091 | -016 | 739 | 228 | -270 | -021 | 111 | 031 | 047 | -082 | -503 | 122 |
| Pleasant (Unpleasant) to Listen to | -059 | -402 | 320 | 119 | 015 | -053 | 442 | -023 | 286 | 004 | 078 | -402 | 099 | -109 | -052 |
| Poised-Ill at Ease | 108 | 045 | -114 | 014 | -278 | -001 | -139 | -145 | -238 | -052 | -177 | 1170 | 009 | -080 | 088 |
| Profound-Shallow | -191 | -114 | 100 | -281 | -026 | 010 | 496 | -035 | 537 | -214 | -202 | -192 | -071 | 060 | 283 |
| Relaxed-Tense | -127 | 011 | 198 | -116 | 653 | 059 | -149 | -406 | -093 | 096 | 234 | 308 | -017 | -010 | -474 |
| Sincere-Insincere | -098 | -060 | -182 | 155 | 508 | -080 | 046 | 211 | -145 | -017 | -239 | -070 | -204 | 116 | 187 |
| Sociable-Inhibited | -021 | 182 | 227 | 098 | -142 | 082 | -209 | 797 | -153 | 029 | 026 | -274 | -021 | -192 | -200 |
| Stimulating-Deadening | 493 | 011 | -124 | -034 | -097 | 069 | -474 | -252 | 194 | -060 | 018 | 201 | -007 | 228 | -014 |
| Vigorous-Lifeless | -170 | 782 | -103 | -139 | 215 | -114 | 108 | -001 | -311 | -033 | 093 | -079 | -072 | -108 | 090 |
| Warm-Cool | -050 | 043 | -017 | 081 | -149 | 389 | -347 | -049 | 232 | -077 | 057 | -036 | 001 | 187 | -135 |
| Witty-Stolid | -057 | -359 | -130 | 179 | -228 | -077 | 167 | -143 | 031 | 121 | 099 | -037 | 805 | 051 | -063 |

[a] All figures should be multiplied by $10^{-3}$

was intended for use in the introductory course in public address. The topic gave him an opportunity to demonstrate personally all the points relating to platform performance which he discussed. While not specifically adapted for television presentation, the lecture was nevertheless directed to the cameras, and involved some visuals and a great amount of teacher movement and stage "business." The reproductions of single frames from the kinescope, shown in Appendix E, reflect the emphasis upon Funk as a teacher serving as a model for students.

The kinescope was shown to nine sections of the introductory course in public address on October 22, and to three more sections on October 23, 1962. On February 28, 1963, an evening adult extension division class saw the kinescope. On March 11, 1963, the kinescope was shown to an additional five sections of the public address course; and to three more sections on the following day.

For all classes, essentially the same procedure was followed. Two 23-inch classroom receivers were located at the front of the classrooms involved. Ten minutes before the hour, the Syracuse University seal and background music were fed into the closed-circuit system to make certain that picture and sound were functioning properly. Promptly on the hour, the picture and sound faded out. One of the research staff was then introduced by the regular instructor as a member of the Television-Radio Department. He explained that:

> [Syracuse University is] studying several methods of evaluating college teaching. We would like you to help us by evaluating today's instruction. Very often, the way we react depends on the mood we're in. So we first want you to complete this brief check list. . . .

He then distributed 5 by 8 inch cards containing the Adjective Check List[1] on one side and a set of instructions on the other. Asking the class to follow along, he read the instructions aloud, then asked them to complete the card. After approximately three minutes the cards were collected. He then introduced the lesson by saying:

> Today the Chairman of the Public Address Department, Professor Frank Funk, will be instructing you by means of a television kinescope which he has specially prepared for this class. As you may know,

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[1] See Appendix C.

> there are many sections of public address this semester. So it's almost impossible for a guest lecturer to visit every section unless he is able to use some system such as television. So that's what Professor Funk is doing today. His lecture will start in just a minute.

The lesson began on a time signal at ten minutes past the start of the hour. It concluded thirty minutes later. At its conclusion, the research assistant then turned off the television set and immediately requested:

> Now will you please assist us by carefully completing this brief questionnaire. Do page 1 first, then pages 2 and 3, then page 4, in that order. Be sure to read the instructions at the top of each page. The first page is just like you did earlier. This should take only a few minutes.

The questionnaire was distributed. At the point where most students had completed the ratings, all were reminded to check to make certain they had not inadvertently overlooked any scales. The questionnaires were collected shortly thereafter, and the students dismissed. All classes were concluded within one minute of the normal dismissal time.

From the twenty-one classes involved in the experimental lecture, complete data were obtained from 333 students. Utilizing the same factor analysis and factor rotation programs as previously used with the Ideal Teacher problem and the Ben Burtt teaching experiment, the 39 teacher trait scales were factored and rotated. The procedure yielded 16 Television Teacher Trait factors. Table 7 shows the contribution of each scale to each factor in terms of Beta weights computed for each scale.

In conjunction with Professor Funk's lecture to students in the beginning public address course at Syracuse University, a kinescope was obtained from outside sources for use in the classes on a comparative basis. The kinescope had been prepared by the late Irving Lee, Professor of Speech at Northwestern University. Long noted as a skilled teacher, lecturer, and platform performer, Professor Lee exhibited a natural, though disciplined, style attempted by many but emulated by few. His presentation could be described as a podium-classroom

## TABLE 7

## BETA WEIGHTS$^a$ COMPUTED FROM ROTATED FACTOR ANALYSIS OF TEACHER TRAIT ADJECTIVAL SEMANTIC DIFFERENTIAL SCALES FOR PROFESSOR FRANK FUNK LECTURE ON "PHYSICAL BEHAVIOR," N = 333

| Scale | Factor | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | comp | sti | imp | nat | int | dyn | act | pro | sty | comm | wit | for | org | clr | ass | ctl |
| Active-Passive | 005 | 165 | -242 | -074 | -013 | 151 | 950 | -089 | -140 | 029 | -190 | -213 | -196 | 179 | -030 | -113 |
| Aggressive-Timid | -066 | -023 | 104 | 000 | 082 | -155 | 105 | 024 | 272 | -192 | -181 | -024 | -073 | -036 | 619 | -220 |
| Assertive-Restrained | -046 | 002 | -070 | -053 | 060 | 122 | -161 | 006 | -177 | 107 | -067 | -052 | -030 | -129 | 672 | 172 |
| Authoritative-Superficial | 011 | -122 | 313 | -138 | 101 | 292 | 069 | 129 | -079 | -212 | -248 | -065 | -201 | 335 | -010 | -032 |
| Brilliant-Mediocre | -027 | -095 | -176 | 028 | -037 | 931 | 017 | -026 | -276 | 113 | 052 | -148 | -353 | 016 | 095 | 088 |
| Clear-Hazy | -036 | 011 | -161 | -080 | 042 | 058 | -026 | -121 | -048 | 033 | 139 | -118 | -092 | 837 | -125 | -028 |
| Colorful-Colorless | -131 | 118 | 132 | -097 | -066 | -194 | 028 | -002 | 518 | -141 | -046 | 038 | -132 | -071 | 050 | 189 |
| Communicative-Inarticulate | 029 | -036 | 298 | -280 | 070 | 065 | -118 | -335 | 004 | 505 | -186 | 038 | -005 | 059 | -127 | 204 |
| Confident-Nervous | 683 | 208 | -148 | -371 | 056 | -029 | 111 | 115 | -408 | -011 | -103 | 144 | 042 | 084 | 006 | -151 |
| Controlled-Impulsive | -092 | 189 | -096 | -082 | 056 | -005 | -092 | -003 | 085 | -214 | -239 | 076 | -197 | -106 | 105 | 947 |
| Definite-Uncertain | -059 | 012 | -215 | 158 | -106 | -306 | 125 | 328 | 048 | -189 | -056 | 255 | 077 | 266 | -141 | 022 |
| Demonstrative-Withdrawn | -017 | 072 | -329 | 063 | -058 | -077 | 054 | -070 | -223 | 892 | -020 | 026 | -135 | -011 | 163 | -157 |
| Direct-Evasive | -012 | -032 | 190 | -215 | 080 | -055 | 097 | -173 | 067 | -045 | -113 | -084 | 139 | 130 | -042 | 367 |
| Dynamic-Static | 007 | -169 | -156 | -273 | -054 | 566 | -036 | -054 | 284 | -310 | 017 | 154 | 564 | -232 | -098 | -016 |
| Easy (Hard) to Take Notes | -043 | 106 | -283 | 001 | -043 | -110 | -027 | 051 | 031 | -040 | -114 | -064 | 825 | -016 | 008 | -150 |
| Effective-Ineffective | -222 | -248 | 431 | 464 | 059 | -088 | 061 | -178 | 097 | 216 | -127 | 054 | -248 | 368 | -256 | 415 |
| Enthusiastic-Not Enthusiastic | 004 | -028 | 055 | 006 | -072 | -129 | -274 | -147 | -304 | 148 | 070 | 1092 | -109 | -216 | -018 | 167 |
| Exciting-Dull | -027 | 739 | -339 | 113 | -016 | -088 | -013 | -178 | -056 | -130 | -067 | 138 | 024 | -013 | -059 | 201 |
| Forceful-Weak | -034 | -272 | -311 | -058 | -032 | 187 | -064 | 148 | 057 | 457 | -041 | 425 | 217 | -181 | -201 | -112 |
| Friendly-Hostile | 020 | -196 | 032 | 016 | -150 | 100 | 103 | 250 | -460 | -093 | 384 | -138 | 309 | 155 | 083 | -069 |
| Gay-Solemn | -006 | -099 | -133 | 129 | -116 | 024 | -044 | -058 | -086 | 083 | 891 | 024 | -219 | 172 | -154 | -228 |
| Graceful-Awkward | 024 | -008 | -292 | 279 | -043 | -095 | -217 | -099 | 554 | 055 | 026 | -107 | -022 | -165 | 125 | 222 |

TABLE 7--Continued

| Scale | Factor | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | comp | sti | imp | nat | int | dyn | act | pro | sty | comm | wit | for | org | clr | ass | ctl |
| Impressive-Unimpressive | -073 | -116 | 868 | 020 | -007 | -022 | -161 | 124 | -016 | -413 | -100 | 066 | -250 | -182 | 236 | 227 |
| Inspiring-Apathetic | -078 | 309 | -354 | -341 | 039 | -099 | -125 | 327 | 322 | 317 | 076 | -178 | -047 | 072 | 016 | 031 |
| Interesting-Boring | 020 | 522 | 238 | -009 | -008 | -165 | 126 | -130 | -390 | 029 | -124 | -049 | 245 | -076 | -014 | -084 |
| Intimate-Remote | 044 | -004 | -029 | -313 | 703 | 244 | -102 | -149 | 185 | -173 | -129 | -166 | 115 | 028 | 037 | 066 |
| Natural-Affected | -047 | -015 | -131 | 699 | 013 | -185 | 014 | -081 | 256 | -103 | -018 | -023 | -160 | 011 | -095 | -035 |
| Organized-Unorganized | 012 | 036 | 057 | -090 | -107 | -163 | -300 | -003 | -039 | -060 | -114 | 109 | 290 | 095 | 359 | 203 |
| Personal-Impersonal | -027 | 093 | 104 | -069 | 681 | -294 | -064 | 166 | -143 | 169 | -224 | -025 | -226 | 021 | 115 | 037 |
| Pleasant (Unpleasant) to Listen to | -169 | 032 | -380 | 602 | -099 | 092 | -132 | 046 | -124 | 248 | 077 | -017 | 176 | -099 | -001 | -097 |
| Poised-Ill at Ease | 354 | -285 | -067 | -145 | -021 | 007 | 076 | 055 | 508 | 054 | 039 | -292 | -150 | 183 | -035 | -127 |
| Profound-Shallow | -036 | -103 | -091 | -195 | 026 | -060 | -066 | 957 | 009 | -150 | 053 | -115 | 069 | -178 | 050 | 056 |
| Relaxed-Tense | 528 | -158 | 302 | 068 | -019 | 094 | -158 | -303 | -164 | 037 | 164 | 032 | -001 | -254 | -140 | 068 |
| Sincere-Insincere | -054 | -018 | -071 | 534 | -046 | -033 | 088 | 003 | -279 | -272 | 016 | -033 | 256 | -108 | 176 | 126 |
| Sociable-Inhibited | -039 | -113 | -034 | 122 | -063 | -339 | 309 | 110 | 212 | -108 | 321 | 104 | 100 | -447 | -160 | 258 |
| Stimulating-Deadening | 042 | 247 | 160 | -196 | -019 | -053 | 048 | 101 | 093 | 058 | 184 | -183 | -007 | -063 | -113 | -157 |
| Vigorous-Lifeless | -132 | 004 | 115 | 044 | -089 | 100 | 191 | -218 | 232 | -327 | -098 | 104 | 103 | 252 | 115 | -227 |
| Warm-Cool | 038 | -171 | 208 | 062 | 151 | 250 | 156 | -066 | -253 | -248 | 162 | 036 | -272 | 234 | -037 | -129 |
| Witty-Stolid | 048 | -183 | 425 | -240 | -032 | -155 | -148 | 190 | 068 | 125 | 415 | 017 | 014 | -187 | -039 | -199 |

[a] All figures should be multiplied by $10^{-3}$.

type. He stayed at a lecturn except for an occasional reference to a simple blackboard diagram, and made use only of a few objects near at hand. Illustrations of his lecture-conversation manner are shown in Appendix F.

Professor Lee's kinescope was on the general topic of semantics and was titled, "Why do People Misunderstand Each Other?" It was presented to students in selected sections of the public address course on November 1 and 2, 1962, and on March 14 and 15, 1963. Of 219 students in these sections who had originally seen Professor Funk, 163 also saw Professor Lee. No separate factor analysis was performed. Rather, the Irving Lee data were processed using Beta Weights derived from the Frank Funk factor analysis. A comparative analysis of the Funk and Lee data is reported later.

### Experiment 3--Professor William Sheldon

The third experimental kinescope involving another academic area was created by Dr. William Sheldon, Professor of Education, Director of the Syracuse Reading Center, and an internationally known authority on reading. The lecture was planned for use in a basic course available to all university students on an elective basis. The course, "General Education 1: Improvement of Learning," seeks to improve general study skills, including vocabulary, comprehension, and reading efficiency. It is recommended especially for students who have been admitted to Syracuse University with below-average scores on the Verbal section of the Scholastic Aptitude Test administered by the College Entrance Examination Board; but may be taken by anyone desiring to improve his skills.

The lecture on "Skimming" was designed to present in an organized fashion ten steps to be taken by a student in rapidly perusing a book to judge its value as a reference when preparing a term paper. As Professor Sheldon identified each step, key words were superimposed upon the screen. He illustrated each step. Three students were in the television studio to constitute a "class," and Professor Sheldon divided his attention between the students and the camera lens. After the formal presentation, each student skimmed a book. The lecture concluded with Professor Sheldon, in summary, repeating the steps.

The kinescope was shown to twelve sections of students on December 18 and 19, 1963; and to an additional seven sections on February 17 and 18, 1964. For all classes, the same procedure was followed as described previously for the lecture by Professor Funk.[1] All classes were concluded on schedule.

Two 23-inch classroom receivers were located at the front of each of two classrooms that were regularly used to teach the course. These rooms were in a prefabricated unit of World War II vintage, and their regular and continued use probably demonstrated the ability of teachers to teach and students to learn despite adverse environmental conditions. The weather was very cold with much snow during the tests. The "knocking" of a steam pipe created a moderate disturbance in one section; ice breaking off the roof momentarily disturbed another section. In one section, intermittent picture fuzziness occurred on four occasions; in two sections, picture breakup occurred for 15 seconds and for ten seconds. The regular instructor arrived five minutes late for one class; but the experiment was conducted on schedule by the research assistant. Although all instructors were asked merely to sit and participate in a normal fashion after introducing the visitor from the Television-Radio Department, one sat at the left front of the room and appeared uninterested, although polite. Another assumed an active role, pointing up certain parts of the program during its presentation.

Despite these variations, students in general gave the appearance of being attentive. Most seemed to take notes with care, taking their cues from the superimposures. There was some disbelief that Professor Sheldon could actually skim a book as rapidly as he demonstrated, but this was apparently allayed later when the students on television were able to perform in similar, if less rapid, fashion.

From the nineteen sections, complete data were obtained from 260 students. Utilizing essentially the same factor analysis and factor rotation programs as previously, the 39 teacher trait scales were factored and rotated. The procedure in this experiment yielded 12 Television Teacher Trait factors. Table 8 shows the contributions of each scale to each factor in terms of Beta Weights computed for each scale.

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[1] See pages 48 and 49.

## TABLE 8

BETA WEIGHTS[a] COMPUTED FROM ROTATED FACTOR ANALYSIS OF TEACHER TRAIT ADJECTIVAL SEMANTIC DIFFERENTIAL SCALES FOR PROFESSOR WILLIAM SHELDON LECTURE ON "SKIMMING," N = 260

| Scale | Teacher Trait Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | sti | comp | comm | dyn | wit | sty | pro | org | fri | ass | int | ctl |
| Active-Passive | -153 | -116 | 143 | 033 | -034 | 162 | -034 | -211 | 075 | 285 | -052 | 055 |
| Aggressive-Timid | 052 | 022 | -241 | 358 | -083 | 231 | -421 | 194 | -168 | 323 | -140 | 027 |
| Assertive-Restrained | -098 | -017 | -058 | 137 | 000 | -337 | -132 | -067 | 073 | 539 | -080 | 227 |
| Authoritative-Superficial | -015 | -136 | -315 | -250 | 087 | 027 | 191 | 250 | -161 | 412 | 162 | -003 |
| Brilliant-Mediocre | -095 | -006 | 026 | 276 | 091 | -303 | -024 | -032 | 338 | 045 | -013 | -190 |
| Clear-Hazy | -008 | 039 | 132 | -188 | 092 | -378 | 186 | 163 | 101 | 071 | -102 | 084 |
| Colorful-Colorless | 126 | -054 | 047 | -239 | 431 | -002 | -011 | -042 | -119 | 015 | 059 | 004 |
| Communicative-Inarticulate | 004 | -015 | 531 | -070 | 106 | -097 | -069 | -134 | -028 | -035 | -074 | 043 |
| Confident-Nervous | 016 | 411 | 017 | -014 | 023 | -227 | 095 | -021 | -101 | -067 | 089 | -098 |
| Controlled-Impulsive | -070 | -102 | -067 | 003 | 066 | -065 | -037 | -202 | -096 | -090 | 015 | 945 |
| Definite-Uncertain | -158 | 097 | -178 | 119 | -027 | -149 | 232 | 185 | 067 | 043 | -095 | 091 |
| Demonstrative-Withdrawn | 073 | -040 | 266 | -445 | -024 | 095 | 092 | -074 | -208 | 515 | 074 | -222 |
| Direct-Evasive | -155 | -027 | 729 | -144 | 118 | -052 | -063 | -100 | -051 | -106 | 023 | 023 |
| Dynamic-Static | -174 | -110 | -028 | 658 | 071 | -084 | -024 | -008 | -203 | -154 | 182 | 104 |
| Easy (Hard) to Take Notes | 121 | -003 | 095 | 175 | -140 | 262 | -414 | 553 | -196 | -241 | 125 | -196 |
| Effective-Ineffective | 077 | -095 | -081 | 150 | -217 | -097 | 200 | 030 | 174 | 112 | -036 | -144 |
| Enthusiastic-Not Enthusiastic | -191 | -097 | -011 | -074 | 119 | 065 | 551 | -001 | 123 | -152 | -217 | 015 |
| Exciting-Dull | 220 | -043 | 040 | -102 | 060 | 139 | 379 | -240 | -235 | -262 | -051 | 232 |
| Forceful-Weak | -199 | -032 | -058 | 409 | -077 | 150 | 158 | -090 | 010 | -185 | -144 | 200 |
| Friendly-Hostile | -162 | -157 | -114 | -181 | 089 | 393 | 058 | 166 | 386 | -393 | -060 | 200 |
| Gay-Solemn | -131 | -057 | 171 | -186 | 888 | -130 | -004 | -004 | -247 | -135 | -070 | 145 |
| Graceful-Awkward | -039 | 145 | -043 | 250 | -105 | 395 | -312 | 082 | -078 | -188 | -119 | 186 |
| Impressive-Unimpressive | 210 | -053 | 077 | -047 | -109 | -123 | -062 | 020 | 285 | 134 | -009 | -199 |
| Inspiring-Apathetic | 251 | -095 | -053 | 074 | -085 | 236 | 052 | 254 | -130 | -140 | -022 | -221 |

TABLE 8--Continued

| Scale | Teacher Trait Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | sti | comp | comm | dyn | wit | sty | pro | org | fri | ass | int | ctl |
| Interesting-Boring | 555 | 044 | 057 | -266 | 119 | -239 | -110 | -146 | 067 | 034 | -147 | 147 |
| Intimate-Remote | -057 | -004 | 106 | 074 | -046 | 135 | 004 | -095 | -107 | -178 | 461 | -104 |
| Natural-Affected | 085 | 177 | -229 | -196 | -104 | 119 | -175 | 147 | 055 | 237 | 070 | -002 |
| Organized-Unorganized | -082 | -062 | -210 | -011 | 072 | -014 | -100 | 557 | -043 | 180 | 017 | -047 |
| Personal-Impersonal | -051 | 021 | 048 | -021 | -072 | -174 | -043 | -028 | -003 | 013 | 643 | -119 |
| Pleasant (Unpleasant) to Listen to | 094 | 119 | -059 | -081 | -096 | -014 | 256 | 041 | -120 | -113 | 137 | -010 |
| Poised-Ill at Ease | -105 | 380 | 132 | -022 | -008 | -067 | -025 | -115 | -071 | -059 | 023 | 149 |
| Profound-Shallow | -130 | 061 | -063 | 032 | -235 | 050 | 504 | -185 | -188 | 109 | 166 | -003 |
| Relaxed-Tense | -050 | 536 | 053 | -184 | 006 | -133 | 091 | -076 | 111 | -024 | -055 | -188 |
| Sincere-Insincere | -096 | -011 | -033 | 051 | -209 | -228 | -094 | -144 | 858 | -020 | -025 | 045 |
| Sociable-Unhibited | -069 | -158 | 020 | -139 | -015 | 734 | 156 | -061 | -071 | -111 | -125 | -072 |
| Stimulating-Deadening | 548 | -073 | -178 | -069 | -097 | 135 | -298 | 095 | -068 | 097 | -017 | 088 |
| Vigorous-Lifeless | -075 | -080 | -027 | 269 | 174 | -105 | -088 | 122 | 235 | -006 | -061 | -191 |
| Warm-Cool | -136 | -018 | -115 | 069 | 005 | -133 | -112 | 030 | -139 | -007 | 561 | 302 |
| Witty-Stolid | 063 | 050 | -068 | 184 | -022 | 061 | -316 | -060 | 194 | 009 | 127 | -186 |

[a] All figures should be multiplied by $10^{-3}$.

### Experiment 4--Professors Lawrence Myers and Charles Siepmann

The fourth experimental kinescope was prepared by the director of this research project, Dr. Lawrence Myers. He produced a thirty-minute lecture on "Communication Theory" for presentation to students enrolled in an introductory elective course offered by the Television and Radio Department. Highly visual in character, a deliberate attempt was made to accentuate certain unique qualities of television in order to develop a lesson which would be impossible to reproduce similarly in the classroom. As examples, the teacher appeared in the first scene in the role of Zorro, with cape, hat, mask, and whip; closeups were shown of small magazine advertisements; visuals were used to reinforce commentary both directly with words and indirectly with symbols and charts; animated pictures and graphs attempted to stimulate interest and, sometimes, shock; the camera was used to limit, then to reveal, pictorial detail in a manner similar to a programmed learning sequence. Illustrations of this presentation are shown in Appendix I.

Because the number of enrollees in the introductory course was not large, and because the course was offered only in the spring semester, the kinescope avoided references to date or time so that it could be repeated in subsequent semesters. The first presentation occurred in February, 1962. The lecture was repeated in February, 1963 and in February, 1964. In 1964 special arrangements were made to present the kinescope to an additional 60 students enrolled in an introductory course in journalism in order to augment the sample, the lecture being equally appropriate to this group. Finally, the Myers kinescope was shown to a class of graduate students enrolled in a course in television communications research and theory during the fall semesters in September of 1962, 1963 and 1964. Procedures for presenting the lecture via closed circuit television, and for collecting data before and after each presentation were the same as described previously, with one exception. The semantic differential scales were composed of 19-step scales rather than 9-step scales. Over the three-year interval, complete sets of data were obtained from 352 students exposed to the Myers lecture.

The experimental plan utilized one additional kinescope lecture which had been previously prepared in the Syracuse University television studio as part of an earlier research project.[1] The lecturer was Professor Charles A. Siepmann, Chairman of the Department of Communication in Education at New York University. His topic was "Freedom and Responsibility in Broadcasting." This kinescope was selected because it was relevant to the introductory course in broadcasting, and as a contrast to the Myers' approach to production. In the Siepmann lecture, no attempt whatsoever was made to make use of any unique pictorial aspect of television. The late Edward R. Murrow once suggested that the medium of television was most effective when it was used to present "a good picture of a man talking with conviction and knowledge of his subject."[2] To emphasize the "personality" approach to television teaching, Professor Siepmann merely sat on the edge of a desk and talked seriously to a single camera for thirty minutes. He is shown in Appendix H.

The Siepmann kinescope was also shown to students in the introductory course in broadcasting during three consecutive spring semesters, using the identical procedures and test instruments as with the Myers kinescope. As a result, 206 students who had seen and given their reactions to Professor Myers also participated in the Siepmann experimental lecture. The teacher trait ratings of the 206 Siepmann-exposed students were combined with the teacher trait ratings of the 352 Myers-exposed students to form a set of 558 television teacher ratings. Using factor analysis and rotation programs as before, the 39 scales were factored and rotated. The procedure yielded 13 Television Teacher Trait factors. Table 9 shows the contribution of each scale to each factor in terms of Beta Weights computed for each scale.

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[1] Lawrence Myers, *An Experimental Study of Influence of the Experienced Teacher on Television*, *op. cit.*

[2] Mr. Murrow was being interviewed by Louis M. Lyons on a radio program, *The Press and the People*, for the National Association of Educational Broadcasters. Murrow also described an effective television personality as a man who "knew what he was talking about, had a fire in his belly, and was able to communicate it." This was one criterion in selecting the professors for the experiment.

## TABLE 9

## BETA WEIGHTS[a] COMPUTED FROM ROTATED FACTOR ANALYSIS OF TEACHER TRAIT ADJECTIVAL SEMANTIC DIFFERENTIAL SCALES FOR PROFESSOR LAWRENCE MYERS AND PROFESSOR CHARLES SIEPMANN LECTURES (N = 558)

| Scale | Factor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Sti | 2 Agg | 3 Wit | 4 Pro | 5 Comm | 6 Int | 7 Org | 8 Comp | 9 Dyn | 10 Fri | 11 Dir | 12 Conf | 13 Ctl |
| Active-Passive | 023 | 206 | -010 | 030 | -064 | -033 | 069 | 060 | -010 | 181 | -012 | -274 | -038 |
| Aggressive-Timid | 017 | 823 | -325 | -022 | -125 | 011 | -193 | -196 | -071 | 039 | -042 | 210 | 000 |
| Assertive-Restrained | 009 | 483 | -074 | 054 | -120 | 023 | 081 | 181 | -116 | -213 | 042 | -202 | -017 |
| Authoritative-Superficial | -366 | 046 | 166 | 784 | -071 | -084 | 043 | 023 | -200 | 017 | -069 | 076 | -223 |
| Brilliant-Mediocre | -254 | 073 | 517 | 476 | -388 | -004 | 231 | -006 | 308 | -358 | -357 | -304 | 493 |
| Clear-Hazy | 042 | -158 | -156 | 079 | -149 | -139 | 664 | -035 | -141 | 233 | -067 | -010 | 020 |
| Colorful-Colorless | 192 | -026 | 149 | -064 | 246 | -041 | -277 | 021 | -132 | 031 | 077 | 020 | -163 |
| Communicative-Inarticulate | -096 | -114 | -307 | -060 | 357 | -254 | 074 | 001 | 028 | 352 | 215 | -140 | 049 |
| Confident-Nervous | 124 | 007 | 155 | -159 | -300 | -009 | 079 | -135 | -165 | -228 | -289 | 1085 | 030 |
| Controlled-Impulsive | 002 | 034 | 104 | -447 | 123 | -189 | 053 | -182 | -045 | -004 | -033 | 010 | 901 |
| Definite-Uncertain | -315 | -013 | -198 | 141 | -071 | -134 | -120 | -297 | 487 | 116 | 075 | 594 | -212 |
| Demonstrative-Withdrawn | -214 | 251 | -066 | 211 | 176 | -010 | -059 | -113 | -336 | 340 | 043 | 058 | -188 |
| Direct-Evasive | 138 | -078 | -168 | -012 | -165 | 130 | -164 | 165 | -207 | -079 | 1016 | -325 | -218 |
| Dynamic-Static | 085 | 124 | 243 | -277 | -014 | 176 | -128 | -032 | 333 | -536 | 030 | -065 | 301 |
| Easy (Hard) to Take Notes | 062 | -079 | -119 | -181 | -126 | 081 | 786 | -010 | -009 | -183 | -196 | 059 | 041 |
| Effective-Ineffective | -074 | 010 | -162 | 254 | 341 | -058 | 200 | 030 | -196 | 082 | -053 | -153 | -100 |
| Enthusiastic-Not Enthusiastic | -048 | -176 | -022 | -059 | -214 | -066 | -001 | 120 | 1084 | -093 | -223 | -120 | -165 |
| Exciting-Dull | 302 | -053 | 113 | -010 | 121 | -053 | 039 | -008 | -063 | -131 | -265 | 196 | -071 |
| Strong-Weak | -456 | -096 | -238 | 158 | 768 | -112 | 205 | -016 | 316 | -033 | -253 | -080 | -064 |
| Friendly-Hostile | -183 | -138 | 184 | -226 | -037 | -106 | -142 | -179 | 141 | 553 | -061 | 078 | 380 |

TABLE 9--Continued

| Scale | Factor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1<br>Sti | 2<br>Agg | 3<br>Wit | 4<br>Pro | 5<br>Comm | 6<br>Int | 7<br>Org | 8<br>Comp | 9<br>Dyn | 10<br>Fri | 11<br>Dir | 12<br>Conf | 13<br>Ctl |
| Gay-Solemn | -188 | -228 | 752 | 128 | -067 | -065 | -160 | -112 | -136 | -023 | 128 | 197 | -110 |
| Graceful-Awkward | -324 | 010 | 144 | -154 | 613 | -199 | -181 | 287 | -023 | -125 | -022 | -167 | 409 |
| Impressive-Unimpressive | 226 | 046 | -036 | 150 | -108 | -115 | -194 | -035 | 104 | 129 | 057 | -146 | 081 |
| Inspiring-Apathetic | 669 | 195 | -191 | -089 | -673 | 092 | 174 | -113 | -099 | -005 | -189 | 111 | 094 |
| Interesting-Boring | 545 | -181 | -062 | -071 | 142 | -095 | -106 | 039 | -255 | 093 | 156 | -002 | -184 |
| Intimate-Remote | -344 | 165 | -374 | -024 | 371 | 839 | 062 | 056 | -149 | -233 | 030 | -093 | -255 |
| Natural-Affected | -058 | -210 | 035 | 140 | 104 | 210 | 122 | 063 | -559 | 282 | -072 | 131 | -016 |
| Organized-Unorganized | -381 | -018 | 435 | -047 | -190 | 000 | 043 | -260 | -137 | -393 | 691 | 173 | 426 |
| Personal-Impersonal | 120 | -029 | -060 | 027 | -400 | 622 | -040 | -019 | -075 | -041 | 093 | 096 | -230 |
| Pleasant (Unpleasant) to Listen to | 266 | -214 | -050 | -457 | 269 | -106 | -269 | -229 | -033 | 111 | 225 | 418 | 183 |
| Poised-Ill at Ease | 035 | -107 | -155 | -174 | 094 | 024 | -179 | 711 | 136 | -217 | 270 | -212 | -195 |
| Profound-Shallow | -235 | -018 | -087 | 625 | 036 | 077 | -394 | -205 | -085 | 107 | 372 | 162 | -357 |
| Relaxed-Tense | 137 | 011 | -027 | -006 | -243 | 050 | 143 | 794 | 005 | -178 | -251 | -175 | -125 |
| Sincere-Insincere | 122 | -164 | 131 | 043 | -601 | 164 | -077 | 234 | 245 | 250 | 001 | -339 | 244 |
| Sociable-Inhibited | -049 | 278 | -319 | 033 | -060 | -124 | 112 | -117 | 023 | 752 | -357 | -006 | -069 |
| Stimulating-Deadening | 655 | 010 | -044 | -358 | 088 | -141 | 102 | -066 | -092 | -132 | -154 | 058 | 243 |
| Vigorous-Lifeless | 090 | 068 | 156 | -106 | -066 | 068 | 046 | 010 | 231 | -260 | -069 | -043 | 032 |
| Warm-Cool | -380 | -126 | -046 | -208 | 686 | 222 | -178 | -184 | -194 | 283 | 105 | 003 | 144 |
| Witty-Stolid | -021 | -212 | 743 | 287 | -340 | -052 | 009 | 070 | 067 | -209 | -022 | -031 | -139 |

[a] All figures should be multiplied by $10^{-3}$.

### Experiment 5--Seven-Teacher Experiment

One final experimental approach to the determination of Television Teacher Trait factors was effectuated in the introductory course in broadcasting during the spring semester, 1964. Approximately one-half of this course was taught by means of closed-circuit television as a routine procedure. During the course, various faculty members in the Television and Radio Department presented lectures related to their special expertise. Students were asked to rate each of the following: Dr. Lawrence Myers (Kinescope--Communication Theory), Professor Charles Siepmann, N. Y. U. (Kinescope--Freedom and Responsibility in Broadcasting), Dr. A. William Bluem (Documentary Form in TV), Dr. Eugene S. Foster (Educational Broadcasting), Dr. John Rider (TV News), Mr. Richard Averson (TV Advertising), and Mr. Marvin Rimerman (International Broadcasting). A total of 85 students in the course saw and rated at least one lecture. Actually, 82 students rated Myers, 82 rated Siepmann, 70 rated Bluem, 75 rated Foster, 67 rated Rider, 72 rated Averson, and 70 rated Rimerman. These data were then subjected to factor analysis and rotation procedures as previously described. The effective sample size for the factor analysis was 595 (85 students x 7 teacher rating experiments); in the instances where a student did not participate in rating a teacher, he was arbitrarily given a set of scores equal to the mean of the students who did rate the teacher. From this factor analysis involving one class of students rating seven teachers, twelve Teacher Trait Factors were identified. Table 10 shows the Beta Weights computed for the scale-factor matrix.

## Consolidation of Television Teacher Traits

In each of the experiments described on the preceding pages, the teacher trait factors identified were then compared with other experimental variables. These comparisons will be the subject of subsequent discussion. Before proceeding, it would be appropriate at this point to summarize the results of the experiments, noting in particular the extent to which similar factors emerged from sets of data obtained when different subjects were exposed to different instructional situations.

TABLE 10

BETA WEIGHTS$^{a}$ COMPUTED FROM ROTATED FACTOR ANALYSIS OF TEACHER TRAIT ADJECTIVAL SEMANTIC DIFFERENTIAL SCALES FOR LECTURES PRESENTED BY SEVEN PROFESSORS OF TELEVISION-RADIO (N = 595)

| Scale | Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1<br>pro | 2<br>ass | 3<br>sti | 4<br>wit | 5<br>int | 6<br>org | 7<br>comm | 8<br>fri | 9<br>comp | 10<br>dyn | 11<br>org | 12<br>ctl |
| Active-Passive | -067 | 736 | 092 | -174 | -157 | 074 | -340 | 177 | -042 | -148 | -002 | 007 |
| Aggressive-Timid | 222 | 122 | -603 | -015 | -057 | -156 | 461 | 032 | -050 | 148 | -070 | 127 |
| Assertive-Restrained | -043 | 938 | -051 | -299 | 008 | 156 | -378 | -089 | 191 | -212 | -066 | -008 |
| Authoritative-Superficial | 338 | 127 | -276 | 050 | 185 | 006 | -257 | -303 | 204 | -040 | 149 | -053 |
| Brilliant-Mediocre | 476 | -018 | -278 | 026 | -004 | -052 | 033 | 079 | -090 | -053 | -098 | 139 |
| Clear-Hazy | -153 | 041 | -086 | 246 | -058 | 444 | -374 | -043 | -080 | 156 | 073 | 031 |
| Colorful-Colorless | 064 | -043 | 186 | 062 | -104 | -023 | 248 | -014 | -055 | -217 | 039 | -086 |
| Communicative-Inarticulate | -026 | -017 | 153 | -365 | -383 | 301 | 433 | 146 | -019 | 059 | -029 | -202 |
| Confident-Nervous | -190 | 132 | 336 | -237 | 015 | -144 | -355 | -110 | 705 | 122 | -106 | -045 |
| Controlled-Impulsive | -241 | 024 | -008 | 125 | 031 | -186 | 016 | -020 | -260 | -084 | -120 | 1060 |
| Definite-Uncertain | -196 | -200 | -117 | 037 | -356 | 074 | -003 | 138 | -059 | 956 | -146 | -026 |
| Demonstrative-Withdrawn | -263 | -077 | 096 | -078 | -104 | 070 | 709 | -142 | -200 | 046 | -039 | -094 |
| Direct-Evasive | -124 | -120 | 098 | 356 | -059 | -219 | -195 | 028 | -188 | -203 | 648 | 206 |
| Dynamic-Static | -086 | -114 | 038 | 195 | 372 | -088 | -011 | -353 | -148 | 324 | -162 | 198 |
| Easy (Hard) to Take Notes | -175 | 141 | -094 | -248 | 065 | 722 | -014 | -069 | -017 | -040 | -087 | -087 |
| Effective-Ineffective | 169 | -086 | 042 | -001 | -164 | 255 | 257 | -082 | -099 | -091 | -061 | -012 |
| Enthusiastic-Not Enthusiastic | -346 | 022 | 234 | -127 | 281 | -116 | -346 | 058 | -032 | 598 | 019 | -195 |
| Exciting-Dull | -049 | -035 | 335 | 082 | 165 | 022 | 123 | -262 | 028 | -001 | -058 | 026 |
| Strong-Weak | 075 | -089 | -068 | 139 | 099 | 113 | -063 | -304 | -035 | 414 | -193 | 048 |
| Friendly-Hostile | -323 | -116 | 299 | -219 | -056 | -188 | 201 | 510 | -054 | -091 | 096 | 053 |

TABLE 10--Continued

| Scale | Factor<br>1<br>pro | 2<br>ass | 3<br>sti | 4<br>wit | 5<br>int | 6<br>org | 7<br>comm | 8<br>fri | 9<br>comp | 10<br>dyn | 11<br>org | 12<br>ctl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gay-Solemn | -137 | -192 | -079 | 837 | -142 | -083 | -125 | -079 | -054 | 109 | 059 | -010 |
| Graceful-Awkward | 081 | -198 | -013 | -087 | -045 | -071 | 753 | -305 | 225 | -231 | 003 | -019 |
| Impressive-Unimpressive | 566 | -117 | -105 | 031 | -329 | -015 | 151 | 260 | -045 | -068 | -079 | -068 |
| Inspiring-Apathetic | 171 | 156 | 009 | -304 | 195 | -094 | -020 | 225 | -179 | -218 | 146 | 063 |
| Interesting-Boring | 128 | 013 | 311 | 186 | -360 | 139 | -131 | 016 | -027 | -032 | -109 | -005 |
| Intimate-Remote | 006 | -029 | -381 | -212 | 725 | 260 | 087 | -125 | -023 | 036 | -110 | -140 |
| Natural-Affected | -011 | -168 | -385 | 644 | 090 | -055 | -286 | -047 | 044 | 067 | -089 | 516 |
| Organized-Unorganized | -088 | -041 | -076 | -080 | 206 | -120 | 068 | -023 | -159 | -324 | 851 | -080 |
| Personal-Impersonal | -073 | -073 | -039 | -007 | 666 | -170 | -176 | 001 | 067 | -305 | 147 | 123 |
| Pleasant (Unpleasant) to Listen to | -275 | -194 | 692 | 010 | -041 | -124 | -022 | -093 | 102 | 040 | -133 | 180 |
| Poised- Ill at Ease | -120 | -076 | 148 | -029 | 020 | -147 | 091 | -158 | 367 | -131 | 235 | -072 |
| Profound-Shallow | 405 | -105 | 264 | -437 | 100 | -296 | 019 | 081 | 101 | -153 | 300 | -275 |
| Relaxed-Tense | 160 | 119 | -321 | 054 | -044 | 244 | -163 | -049 | 617 | -116 | -230 | -150 |
| Sincere-Insincere | 089 | 024 | -296 | 047 | -304 | 053 | -395 | 849 | -048 | 273 | -219 | 100 |
| Sociable-Inhibited | -065 | -065 | -332 | 055 | -122 | -067 | 494 | 320 | -167 | 142 | -151 | 104 |
| Stimulating-Deadening | 030 | 150 | 433 | -073 | -184 | 086 | -086 | -008 | -049 | -149 | -087 | 078 |
| Vigorous-Lifeless | -053 | 011 | -029 | 079 | 305 | -112 | 014 | -196 | -064 | 160 | -010 | 035 |
| Warm-Cool | 033 | 083 | -202 | -346 | 241 | -018 | 063 | 504 | -057 | -204 | 184 | -224 |
| Witty-Stolid | 060 | -072 | -004 | 586 | -110 | -074 | -123 | -085 | 102 | -144 | 162 | -243 |

[a] All figures should be multiplied by $10^{-3}$.

As may be seen in Table 11, eleven of the factors identified by students in describing their conceptions of an Ideal Teacher appeared in all of the television teaching experiments. One other factor appeared in three of the experiments, one factor appeared in two experiments, and one factor appeared in only one additional experiment.

TABLE 11

FACTORS INITIALLY IDENTIFIED IN "IDEAL TEACHER" STUDY MATCHED ACROSS FIVE TELEVISION TEACHING EXPERIMENTS

| Ideal Teacher Factor | Television Teaching Experiment | | | | |
|---|---|---|---|---|---|
| | Burtt | Funk | Sheldon | Myers-Siepmann | 7-Teacher |
| 1. Friendliness | Yes | Yes | Yes | Yes | Yes |
| 2. Stimulation | Yes | Yes | Yes | Yes | Yes |
| 3. Dynamism | Yes-Yes | Yes-Yes | Yes | Yes | Yes |
| 4. Intimacy | Yes | Yes | Yes | Yes | Yes |
| 5. Style | No | Yes-Yes | Yes | No | No |
| 6. Composure | Yes | Yes | Yes | Yes | Yes |
| 7. Control | Yes | Yes | Yes | Yes | Yes |
| 8. Activity | No | Yes | No | No | No |
| (9. Timidity) | - | - | - | - | - |
| 10. Profundity | Yes | Yes | Yes | Yes | Yes |
| 11. Directness | Yes | No | No | Yes | Yes |
| 12. Wit | Yes | Yes | Yes | Yes | Yes |
| (13. Restraint) | - | - | - | - | - |
| 14. Organization | Yes | Yes | Yes | Yes | Yes |
| 15. Communication | Yes | Yes | Yes | Yes | Yes |
| 16. Assertiveness | Yes | Yes | Yes | Yes | Yes |

From the Ideal Teacher Study, the factor of Communication was identified as most important. Its appearance and the variables contributing most to the factor are indicated below. Immediately following, Tables 12b and 12c show the adjectives contributing to the factors of Organization and Directness. It is evident from a study of these three factors that some overlap exists from experiment to experiment, with certain adjectives contributing significantly to one factor in one experiment and to another factor later. Among the complex, the variables easy to take notes and communicative appear in every experiment; the variables, organized and direct, appear in five experiments; and the variable, clear,

## TABLE 12a

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: COMMUNICATION

| Adjective | Experiment<br>Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
|---|---|---|---|---|---|---|
| Communicative | 712[a] | 791 | 505 | 531 | 357 | 433 |
| Clear | 720 | 480 | - | 132 | - | - |
| Colorful | 490 | 345 | - | 047 | 246 | 248 |
| Organized | - | 548 | - | - | - | 068 |
| Demonstrative | 128 | 072 | 892 | 266 | 176 | 709 |
| Forceful | n.a. | 075 | 457 | - | n.a. | n.a. |
| Direct | - | - | - | 729 | - | - |
| Effective | 037 | - | 216 | - | 341 | 257 |
| Aggressive | 055 | - | - | - | - | 461 |
| Graceful | - | - | 055 | - | 613 | 753 |
| Sociable | - | 026 | - | 020 | - | 494 |
| Warm | 158 | 057 | - | - | 686 | 063 |
| Strong | - | n.a. | n.a. | n.a. | 768 | - |

## TABLE 12b

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: ORGANIZATION

| Adjective | Experiment<br>Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
|---|---|---|---|---|---|---|
| Easy to Take Notes | 1008 | 634 | 825 | 553 | 786 | 722 |
| Organized | 397 | - | 290 | 557 | - | - |
| Direct | - | 950 | 139 | - | - | - |
| Gay | 180 | 428 | - | - | - | - |
| Dynamic | 251 | 177 | 564 | - | - | - |
| Friendly | - | 291 | 309 | 166 | - | - |
| Clear | 178 | 267 | - | 163 | 664 | 444 |
| Communicative | - | - | - | - | 074 | 301 |

appears in four experiments. The pattern suggests that further researchers may wish to select from several alternatives when evaluating television teachers: 1) Use communicative and easy to take notes as single scales representing two independent factors; 2) Use communicative and easy to take notes as two scales representing a general factor of Communicative Ability; 3) Use the five scales, *communicative*, *easy to take notes*, *organized*, *direct*, and *clear*, to represent the general factor.

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[a] All figures should be multiplied by $10^{-3}$.

### TABLE 12c

### BETA WEIGHTS FOR TEACHER TRAIT FACTOR: DIRECTNESS

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Direct | 715 | - | - | - | 1016 | 648 |
| Definite | 563 | 756 | - | - | 075 | - |
| Demonstrative | 727 | - | - | - | 043 | - |
| Organized | - | - | - | - | 691 | 851 |
| Authoritative | 137 | 1053 | - | - | - | 149 |
| Inspiring | - | 570 | - | - | - | 146 |
| Intimate | 079 | 484 | - | - | - | - |
| Profound | - | 060 | - | - | 372 | 300 |

The second most important factor from the point of view of an Ideal Teacher was tentatively labeled as Stimulation. The contributing variables in the various experiments are shown in Table 12d. The variable, *interesting*,

### TABLE 12d

### BETA WEIGHTS FOR TEACHER TRAIT FACTOR: STIMULATION

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Interesting | 448 | 827 | 522 | 555 | 545 | 311 |
| Stimulating | 430 | 493 | 247 | 548 | 655 | 433 |
| Inspiring | 628 | 153 | 309 | 251 | 669 | 009 |
| Exciting | 076 | 348 | 739 | 220 | 302 | 335 |
| Impressive | 146 | 536 | - | 210 | 226 | - |
| Confident | 031 | 008 | 208 | 016 | 124 | 336 |
| Pleasant to Listen To | - | - | 032 | 094 | 266 | 692 |

appears in every experiment; *stimulating* contributes significantly in five of six experiments; *inspiring* contributes significantly in two experiments and to a lesser extent in another; *exciting* contributes significantly in one experiment and to a lesser extent in three others. It is recommended that the variables, *interesting* and *stimulating*, be used in combination to describe adequately the factor of Stimulation.

Students identified a factor consisting of the variables, *confident* and *controlled*. In the Ideal Teacher study, these variables were presented side-by-side in alphabetical order, and the product-moment correlation of 0.435 indicates that student reactions to one probably carried over to the other. Subsequent television teaching experiments, in which the two variables were separated on the rating sheets, failed to confirm the combination. The single variable, *control*, did appear in all experiments; and, indeed, was the major contributor in most experiments. "Control" is therefore designated as a regularly recurring factor, and may be estimated by use of the single variable, *controlled*.

TABLE 12e

BETA WEIGHTS FOR TEACHER TRAIT FACTOR: CONTROL

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Controlled | 642 | 427 | 947 | 945 | 901 | 1060 |
| Confident | 687 | 184 | - | - | 030 | - |
| Graceful | - | 674 | 222 | 186 | 409 | - |
| Colorful | - | 651 | 189 | 004 | - | - |
| Sociable | 003 | 797 | 258 | - | - | 104 |
| Direct | - | - | 367 | 023 | - | 206 |
| Effective | 020 | 117 | 415 | - | - | - |
| Warm | - | - | - | 302 | 144 | - |
| Brilliant | 063 | - | 088 | - | 493 | 139 |
| Friendly | 025 | 075 | - | 200 | 380 | 053 |
| Dynamic | - | - | - | 104 | 301 | 198 |
| Organized | 028 | - | 203 | - | 426 | - |
| Natural | 256 | - | - | - | - | 516 |

Another factor considered to be very important according to student reactions to an Ideal Teacher was that of Assertiveness. This factor subsequently appeared in every television teacher experiment and was the most clear-cut in terms of a minimum number of variables relating to the axis over the total number of experiments. The variable, assertive, appeared in all experiments; and the variable, aggressive, was a significant contributor in five. It is recommended that a combination of assertive and aggressive constitute the factor labeled Assertiveness.

## TABLE 12f

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: ASSERTIVENESS

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Assertive | 703 | 791 | 672 | 539 | 483 | 938 |
| Aggressive | 336 | 851 | 619 | 323 | 823 | 122 |
| Authoritative | 765 | 098 | - | 412 | 166 | 127 |
| Active | - | 306 | - | 285 | - | 736 |
| Demonstrative | - | 137 | 163 | 515 | - | - |

Another factor identified in the Ideal Teacher study as being very important was that of Composure. Two variables, poised and relaxed, appeared in every experiment and are recommended for use in further studies. The variable, confident, contributed significantly to three studies, and is therefore suggested as a potentially useful additional variable.

## TABLE 12g

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: COMPOSURE

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Poised | 621 | 1170 | 354 | 380 | 711 | 367 |
| Relaxed | 524 | 308 | 528 | 563 | 794 | 617 |
| Pleasant to Listen To | 426 | - | - | 119 | - | 102 |
| Dynamic | - | 344 | 007 | - | - | - |
| Graceful | 052 | 307 | 024 | 145 | 287 | 225 |
| Confident | 053 | 126 | 683 | 411 | - | 705 |

In the Ideal Teacher study, two variables, dynamic and exciting, contributed significantly to one factor axis. In subsequent television teacher experiments, dynamic consistently appeared as a significant variable; but, as seen in Table 12h, it combined with variables which differed among themselves from experiment to experiment. The factor is further complicated because of the appearance of the variable, forceful, in the Sheldon experiment and the complementary variable, strong, in the Myers-Siepmann and Seven-Teacher experiments. It will be recalled that forceful was substituted for strong in the Burtt, Funk and Sheldon experiments. As noted in Table 12h[1], the substitution resulted in an additional factor for the Burtt and Funk experiments in which the variable was related primarily to variables previously presented in Table 12h. Intuitively, it would appear that these variables are contributing to a single factor which has been labeled Dynamism and consists of a combination of the variables, dynamic and forceful.

TABLE 12h

BETA WEIGHTS FOR TEACHER TRAIT FACTOR: DYNAMISM

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Dynamic | 563 | 696 | 566 | 658 | 333 | 324 |
| Exciting | 505 | 143 | - | - | - | - |
| Colorful | 439 | - | - | - | - | - |
| Vigorous | - | 782 | - | 269 | 231 | 160 |
| Active | 085 | 567 | 151 | 033 | - | - |
| Inspiring | - | 334 | 039 | 074 | - | - |
| Brilliant | - | 254 | 931 | 276 | 308 | - |
| Forceful | n.a. | 075 | 187 | 409 | n.a. | n.a. |
| Aggressive | - | - | - | 358 | - | 148 |
| Enthusiastic | 255 | 094 | - | - | 1084 | 598 |
| Definite | - | - | - | 119 | 487 | 956 |
| Strong | - | n.a. | n.a. | n.a. | 316 | 414 |

## TABLE 12h[1]

## BETA WEIGHTS FOR SECONDARY TEACHER TRAIT FACTOR OF DYNAMISM

| Adjective | Experiment | |
|---|---|---|
| | Burtt | Funk |
| Forceful | 639 | 425 |
| Exciting | 510 | 138 |
| Colorful | 529 | 038 |
| Profound | 496 | - |
| Pleasant to Listen To | 442 | - |
| Enthusiastic | 287 | 1092 |
| Dynamic | 046 | 154 |

Students initially identified an Ideal Teacher factor consisting of a *friendly*-*sincere*-*sociable*-*warm* complex of variables. Subsequent television teacher ratings confirmed the combination of the first two variables, as both *friendly* and *sincere* appeared in four of the five television teaching experiments. No other variable appeared significantly in more than two experiments. The factor of Friendliness is thus confirmed, and it is recommended that the variables, *friendly* and *sincere*, be combined to estimate the factor.

## TABLE 12i

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: FRIENDLINESS

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Friendly | 426 | 664 | 016 | 386 | 553 | 510 |
| Sincere | 620 | 508 | 534 | 858 | 250 | 849 |
| Sociable | 496 | - | 122 | - | 752 | 320 |
| Warm | 343 | - | 062 | - | 283 | 504 |
| Enthusiastic | 263 | 683 | 006 | 123 | - | 058 |
| Relaxed | - | 653 | 068 | 111 | - | - |
| Natural | - | - | 699 | 055 | 282 | - |
| Pleasant to Listen To | - | 015 | 602 | - | 111 | - |
| Effective | - | - | 464 | 174 | 082 | - |
| Brilliant | 071 | 136 | 028 | 338 | - | 079 |
| Communicative | 070 | - | - | - | 352 | 146 |
| Demonstrative | 025 | - | 063 | - | 340 | - |

Activity was initially identified as a factor by students describing an Ideal Teacher. This factor consisted primarily of the variable, active, plus some support from vigorous, assertive, and organized. The subsequent teaching experiments failed to confirm the consistent existence of this factor in the television situation. In only the Funk experiment did active emerge as a separate axis. It is recommended that no factor employing the variables listed in Table 12j be included in future research.

TABLE 12j

BETA WEIGHTS FOR TEACHER TRAIT FACTOR: ACTIVITY

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Active | 746 | | 950 | | | |
| Vigorous | 472 | | 191 | | | |
| Assertive | 357 | | - | | | |
| Organized | 322 | | - | | | |
| Sociable | - | | 309 | | | |

In the Ideal Teacher study, four factors were identified as being "of some importance" in the student description of teachers. The first of these was Wit, and consisted primarily of the single scale, witty. Subsequently, this factor was identified in every television teaching experiment. Witty was a critical variable in four of the five experiments; and gay appeared significantly in all experiments. No other variable appeared in more than one experiment. It is therefore recommended that the variables, gay and witty, be used to identify the factor of Wit.

## TABLE 12k

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: WIT

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Witty | 764 | 805 | 415 | - | 743 | 586 |
| Gay | 141 | 835 | 891 | 888 | 752 | 837 |
| Interesting | 323 | - | - | 119 | - | 186 |
| Vigorous | 363 | - | - | 174 | 156 | 079 |
| Clear | 322 | 090 | 139 | 092 | - | 246 |
| Friendly | - | 131 | 384 | 089 | 184 | - |
| Sociable | 191 | - | 321 | - | - | 055 |
| Colorful | 139 | 257 | - | 431 | 149 | 062 |
| Brilliant | 217 | - | 052 | 091 | 517 | 026 |
| Organized | - | - | - | 072 | 435 | - |
| Direct | - | - | - | 118 | - | 356 |
| Natural | 050 | - | - | - | 035 | 644 |

Another factor identified as of some importance was that of Profundity, initially described primarily by the variables, profound, brilliant, and strong. In subsequent television teaching experiments, this factor consistently appeared. The variable, profound, appeared in all experiments; and the variable, brilliant, appeared in three of five experiments. No other variable made a consistently significant contribution. These two variables, profound and brilliant, are therefore recommended to constitute the factor of Profundity.

## TABLE 12l

## BETA WEIGHTS FOR TEACHER TRAIT FACTOR: PROFUNDITY

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Profound | 627 | 537 | 957 | 504 | 625 | 405 |
| Brilliant | 358 | 950 | - | - | 476 | 476 |
| Strong | 345 | n.a. | n.a. | n.a. | 158 | 075 |
| Demonstrative | - | 951 | - | 092 | 211 | - |
| Definite | - | - | 328 | 232 | 141 | - |
| Inspiring | - | - | 327 | 052 | - | 171 |
| Enthusiastic | - | 044 | - | 551 | - | - |
| Exciting | - | - | - | 379 | - | - |
| Authoritative | 053 | - | 129 | 191 | 784 | 338 |
| Impressive | 097 | - | 124 | - | - | 566 |

The variables, intimate and personal, and perhaps natural, were the significant contributors to another Ideal Teacher factor. Table 12m shows the consistency with which the first two variables appeared in a factor in each of the television teaching experiments.

TABLE 12m

BETA WEIGHTS OF TEACHER TRAIT FACTOR: INTIMACY

| Adjective | Experiment | | | | | |
|---|---|---|---|---|---|---|
| | Ideal Teacher | Burtt | Funk | Sheldon | Myers-Siepmann | Seven Teacher |
| Intimate | 592 | 682 | 703 | 461 | 839 | 725 |
| Personal | 808 | 739 | 681 | 643 | 622 | 666 |
| Natural | 320 | 057 | 013 | 070 | 210 | 090 |
| Warm | 210 | 389 | 151 | 561 | 222 | 241 |
| Dynamic | 081 | 022 | - | 182 | 176 | 372 |
| Vigorous | - | - | - | - | 068 | 305 |

The factor of Intimacy is therefore identified as consisting of the variables, personal and intimate.

The final factor "of some importance" was tentatively identified as "Style" in the Ideal Teacher study. It consisted primarily of the variables, impressive and graceful. This factor did not appear consistently in the television experiments. Table 12n reveals the best matches that can be obtained from the remaining factors.

TABLE 12n

BETA WEIGHTS FOR TEACHER TRAIT FACTOR: STYLE

| Adjective | Experiment | | | |
|---|---|---|---|---|
| | Ideal Teacher | Funk[1] | Funk[11] | Sheldon |
| Impressive | 789 | 868 | - | - |
| Graceful | 539 | - | 555 | 395 |
| Effective | 209 | 931 | 097 | - |
| Witty | - | 425 | 068 | 061 |
| Authoritative | 221 | 313 | - | 027 |
| Relaxed | - | 302 | - | - |
| Colorful | - | 132 | 518 | - |
| Poised | 195 | - | 508 | - |
| Inspiring | - | - | 322 | 236 |
| Sociable | - | - | 212 | 734 |
| Friendly | 052 | 032 | - | 393 |

The combination of the variables, *impressive* and *graceful*, in Ideal Teacher thus failed to reappear. The variable, *graceful*, did contribute significantly throughout the television experiments, but was subsumed under factors which varied from experiment to experiment. In addition to its possible contributions in Table 12n, it will be found in the Burtt experiment as part of the factor of Control, and in the Myers-Siepmann experiment as part of the factor of Communication. It is therefore recommended that the factor of Style be dropped from further research, as the results of experiments seem inconclusive.

To complete the comparative examination, two additional factors appeared in the Burtt experiment and one additional factor in the Funk and the Myers-Siepmann experiments which have not been discussed. They are shown in Table 12o.

TABLE 12o

BETA WEIGHTS FOR MISCELLANEOUS TEACHER TRAIT FACTORS

| Adjective | Experiment | | | |
|---|---|---|---|---|
| | Burtt$^{1}$ | Burtt$^{11}$ | Funk | Myers-Siepmann |
| Effective | 847 | - | 368 | - |
| Natural | 587 | 196 | 011 | 131 |
| Confident | - | 838 | 084 | 1085 |
| Pleasant to Listen To | 119 | 320 | - | 418 |
| Clear | - | 335 | 837 | - |
| Definite | - | 005 | 266 | 594 |

It seems likely that the Funk factor is a part of the complex of Communication-Organization-Directness identified in Tables 12a, b, c, and should be studied within that context. The *effective*-*natural* combination identified in the Burtt experiment is similar to the Funk factor shown in Table 12i. The *confident* variables noted in the Burtt and Myers-Siepmann experiments may be related to the Composure factor described in Table 12g. No additional factors, however, are sufficiently identified to warrant their inclusion in the final instrument.

Based on all experiments, therefore, the following factors and contributory scales are recommended for inclusion in studies identifying television teacher personality characteristics of importance to, and discernible to, students receiving instruction by means of television.

FIGURE 2

RECOMMENDED FACTORS AND SCALES TO BE USED IN THE ASSESSMENT OF TELEVISION TEACHER TRAITS

| Factor | | Scales |
|---|---|---|
| 1. Communication | | Communicative |
| 2. Organization | or | Easy to Take Notes |
| 1-2. Communicative Ability | | Communicative-Easy to Take Notes |
| | or | |
| 1-2. Communicative Ability | | Communicative-Easy to Take Notes-Organized-Direct-Clear |
| 3. Stimulation | | Interesting, Stimulating |
| 4. Control | | Controlled |
| 5. Assertiveness | | Assertive-Aggressive |
| 6. Composure | | Poised-Relaxed |
| 7. Dynamism | | Dynamic-Forceful |
| 8. Friendliness | | Friendly-Sincere |
| 9. Wit | | Witty-Gay |
| 10. Profundity | | Profound-Brilliant |
| 11. Intimacy | | Personal-Intimate |

# CHAPTER IV

## RELATIONSHIPS BETWEEN STUDENT CHARACTERISTICS AND THEIR PERCEPTIONS OF TELEVISION TEACHER TRAITS

### Background of Teacher-Learner Relationships

Coincident with the problem of the identification and assessment of television teacher personality characteristics is the problem of the relationships between teacher and medium and the student. Perceptual psychologists are in agreement that the way in which a person behaves is related to the way things seem to him at any given moment. Behavioral change cannot therefore be directly effected without an understanding of the nature of a student's perceptual field.[1] The extent to which the student derives personal meaning from a communication will have a direct bearing on his behavior. There is invariably an interaction between the instructional presentation and the psychology of the student in terms of mastery of material.[2] Consideration of preferred methods of teaching must thus give consideration to learner personality characteristics. This psychological approach is consistent with current educational philosophy which argues that any theory must somehow be concerned with the individual.[3] Whether the individual should be treated as a single case or in the aggregate is less certain. Skinner and others are concerned with predicting the behavior of individuals rather than in terms of averages of groups of individuals.[4]

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[1] Arthur W. Combs, Perceiving, Behaving, Becoming (Washington: Association for Supervision and Curriculum Development, National Education Association), p. 50.

[2] Jerome Kogan, "Personality and the Learning Process," Daedalus, XCIV, No. 3 (Summer, 1965), 553.

[3] Frederick J. McDonald, "The Influence of Learning Theories on Education (1900-1950)," in Theories of Learning and Instruction, p. 24.

[4] Winfred F. Hill, "Contemporary Developments Within Stimulus-Response Learning Theory," in Theories of Learning and Instruction, p. 37.

Operationally, however, it becomes difficult to match students possessing certain characteristics with a teaching environment exactly compatible. Highet points out that it is seldom feasible for a teacher to treat all pupils as individuals; that, in fact, it would be unwise to do so.[1] He suggests that it is more important to recognize within individuals a combination of broadly-defined types.

No matter which thesis is accepted, there is general agreement that an individual's perception, or interpretation of reality, depends not only upon his physical apparatus, that is, what he is able to perceive, but also upon such factors as motivation, needs, values, the situation, and past experiences.[2] Further, perception is selective. An individual chooses to see that which the self feeds upon.[3] Thus, information communicated by a teacher may have different meaning for different pupils. The implication of individual differences is that the teacher must somehow supply the necessary base, or motivation, or background from which to proceed.[4] If a given behavior had a predictable effect on every pupil on every occurrence, the teacher's task would be simple. It doesn't. Yet, relatively little is known about the nature of the learner in the control of communication.

On a limited basis, Berkowitz and Lundy have shown that certain personality differences in college students are associated with the effectiveness of particular communicators. Subjects most influenced by authority figures tended to have higher self-confidence and stronger authoritarian tendencies than those more influenced by peers.[1]

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[1] Highet, *op. cit.*, p. 36.

[2] Agnes C. Rezler, "The Influence of Needs Upon the Students' Perception of His Instructor," *Journal of Educational Research*, LVIII, No. 6 (February, 1965), 282-86.

[3] Earl C. Kelley, *Perceiving, Behaving, Becoming*, p. 14.

[4] Ryans, *op. cit.*, p. 279.

Allen believes further study of learner characteristics is particularly needed in relation to the new educational media.[2] Holmes could find no conclusive evidence about the student to demonstrate that certain types of individuals are more or less receptive to instructional television.[3] Remmers says that "intervening variables," including personality structures of pupils and the relation of these to teacher qualities, must be taken into account when assessing teacher effectiveness.[4] Greenhill believes that basic research needs to be conducted to determine the kinds of meaning that may be communicated by television to different types of people.[5] Barzun reflects on the complexity of the problem.[6] Students are personalities, as are teachers; and the structures of the two are inescapable elements in the television instructional situation. Do certain kinds of individuals accept the teacher in this instructional medium more readily than others? While some work has been carried out relating intellectual capacity to cognitive achievement from television instruction, little evidence is available relating personality traits to achievement, satisfaction, or acceptance.

The second major objective therefore was to study relationships between selected personality characteristics attributable to students and student perception of television teachers.

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[1] Leonard Berkowitz and Richard M. Lundy, "Personality Characteristics Related to Susceptibility to Influence by Peers or Authority Figures," Journal of Personality, XXV (1957), 306-16.

[2] Allen, op. cit., p. 92.

[3] Holmes, op. cit., p. 86.

[4] H. H. Remmers, "Second Report of the Committee on Criteria of Teacher Effectiveness," Journal of Educational Research, XXXXVI (1953), 641-58.

[5] Greenhill, op. cit., p. 253.

[6] Jacques Barzun, Teacher in America (Boston: Little Brown & Co., 1945), p. 9.

## Comparisons on the Basis of Sex and College Environment

The 618 students who completed the unidimensional rating scales from which Ideal Teacher Traits were determined were classified on the basis of sex, year in school, "major" area of study, and school or college in which enrolled.

Table 13 reports the results of a between-group analysis of variance for each of the sixteen Ideal Teacher Trait factors on the basis of sex. Women attach a greater degree of importance than men to no less than six of sixteen factors. In their conceptions of an Ideal Teacher, women rate Factor 1 (friendly, sincere) significantly higher than men. They also rate Factor 2 (inspiring, stimulating) significantly higher than men. Women also expect their Ideal Teacher to rate higher on Factor 7 (confident, controlled) than do men. Women judge Factor 14 (easy to take notes) to be more important than do men. Women also expect the Ideal Teacher to be more exciting and dynamic (Factor 3) than do men; but they also prefer him to be more poised and relaxed (Factor 6) than do men.

Visualize a teacher who approaches a class exuding confidence and poise; a dynamic person, possessing an exciting inner magic that stimulates his students; able to inspire; yet alert to their need to record his most interesting comments for future reference. He, of course, possesses other characteristics to an important degree. But, all other things being equal, this teacher will probably find women exhibiting a greater tendency than men to enroll in his elective courses.

Conversely, men rate three Teacher Trait factors significantly higher than women. One of these is the negative Factor 13 (restrained, inhibited) and appears to be of no practical value. Men attach a greater degree of importance to Factor 4 (personal, intimate) than do women. Since the meanings connoted by these adjectives were unrestricted, one may conjecture that women may have been inclined to perceive these words in a physical rather than empathic context and thus to rate the factor lower. The other trait to which men attached a greater degree of importance than women was Factor 12 (witty).

## TABLE 13

### ANALYSIS OF VARIANCE OF IDEAL TEACHER TRAIT FACTORS ON THE BASIS OF SEX

(Female = 348, Male = 270; m = 1, n = 616)

| Teacher Trait Factor | Variance/df |  | F-Ratio | Favors |
|---|---|---|---|---|
|  | Between | Within |  |  |
| 1. Sincerity | 6.9704 | 1.8209 | 3.8280# | Female |
| 2. Stimulation | 28.9969 | 1.6492 | 17.5825** | Female |
| 3. Excitability | 23.2525 | 1.5667 | 14.8416** | Female |
| 4. Intimacy | 6.0478 | 1.7919 | 3.3751# | Male |
| 5. Grace | 2.9997 | 1.7616 | 1.7029 |  |
| 6. Composure | 17.6374 | 1.8011 | 9.7926** | Female |
| 7. Confidence | 21.7253 | 1.7724 | 12.2575** | Female |
| 8. Activity | 4.7340 | 1.7907 | 2.6437 |  |
| 9. Timidity | 1.3475 | 1.5473 | 0.8709 |  |
| 10. Profundity | 1.4760 | 1.7833 | 0.8277 |  |
| 11. Definiteness | 0.1399 | 2.0676 | 0.0676 |  |
| 12. Wit | 23.7616 | 2.1162 | 11.2287** | Male |
| 13. Inhibition | 9.6947 | 1.9312 | 5.0201* | Male |
| 14. Note Taking | 25.4373 | 2.3396 | 10.8724** | Female |
| 15. Communication | 5.0728 | 2.1679 | 2.3400 |  |
| 16. Assertiveness | 1.1243 | 1.8395 | 0.6112 |  |

Means (Standard Scores)

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| Female | (1) | 0.0936 | (2) | 0.1908 | (3) | 0.1708 |
| Male |  | -0.1206 |  | -0.2459 |  | -0.2202 |
| Female | (4) | -0.0872 | (6) | 0.1488 | (7) | 0.1652 |
| Male |  | 0.1123 |  | -0.1918 |  | -0.2129 |
| Female | (12) | -0.1728 | (13) | -0.1103 | (14) | 0.1787 |
| Male |  | 0.2226 |  | 0.1422 |  | -0.2303 |

#p < .10; *p < .05; **p < .01.

This does not necessarily suggest that men have a greater sense of humor than women. Perhaps, as a group, women take their education a bit more seriously than do men, and expect their teachers to exhibit similar behavior.

Student growth within the university community, as reflected by his year in school, appears to bear very little relationship to his conceptions of an Ideal Teacher. Concepts of teachers undergo few changes as one progresses from his freshman to his senior year. As seen in Table 14, there is a tendency ($p < .05$) for Freshmen, Juniors, and Seniors to attach greater importance to Factor 4 (personal, intimate) than Sophomores. Perhaps a freshman senses a need for more personal guidance as he begins his university career, while the juniors and seniors sense the same need as they begin seriously to contemplate their post-university careers. A nearly opposite reaction occurs with Factor 10 (profound). Freshmen and Seniors attach a lesser degree of importance to this factor than do Juniors. The only other factor in which a significant variance occurs between means of classes is the negative Factor 13 (restrained, inhibited); Seniors rate this factor relatively higher than do others.

A word of caution is appropriate here. Because of the small numbers of Freshmen and Seniors, there is no assurance that these samples were necessarily representative of their classes.

It will be recalled that Table 1 describes the five areas of study within the university into which all students were arbitrarily classified. Relationships between these "major" areas of study and the Teacher Trait factors are shown in Table 15. On the basis of the analysis of variance, five of the sixteen factors have significant F-ratios.

Students majoring in the social sciences, humanities, and education attached relatively greater importance to Factor 3 (exciting, dynamic), while students majoring in the sciences and engineering attached much less importance to this factor.

Nearly similar results were obtained from students' reactions to Factor 10 (profound). Students majoring in

## TABLE 14

## ANALYSIS OF VARIANCE OF IDEAL TEACHER TRAIT FACTORS ON THE BASIS OF YEAR IN SCHOOL

(FROSH = 26, SOPH = 482, JR = 88, SR = 22; m = 3, n = 614)

| Teacher Trait Factor | Variance/df | | F-Ratio | Favors |
|---|---|---|---|---|
| | Between | Within | | |
| 1. Sincerity | 2.6283 | 1.8254 | 1.4404 | |
| 2. Stimulation | 0.9932 | 1.6969 | 0.5853 | |
| 3. Excitability | 1.4546 | 1.6026 | 0.9077 | |
| 4. Intimacy | 4.7999 | 1.7841 | 2.6904* | FR,JR,SR |
| 5. Grace | 2.5150 | 1.7599 | 1.4290 | |
| 6. Composure | 1.8953 | 1.8264 | 1.0377 | |
| 7. Confidence | 1.1099 | 1.8081 | 0.6138 | |
| 8. Activity | 0.6977 | 1.8008 | 0.3875 | |
| 9. Timidity | 1.1373 | 1.5490 | 0.7343 | |
| 10. Profundity | 11.6078 | 1.7348 | 6.6911 | JR(FR,SR-Low) |
| 11. Definiteness | 2.5155 | 2.0623 | 1.2197 | |
| 12. Wit | 1.2313 | 2.1557 | 0.5712 | |
| 13. Inhibition | 5.7133 | 1.9254 | 2.9674* | SR |
| 14. Note Taking | 3.1409 | 2.3733 | 1.3234 | |
| 15. Communication | 1.4127 | 2.1763 | 0.6492 | |
| 16. Assertiveness | 2.5807 | 1.8347 | 1.4066 | |

Means (Standard Scores)

| | (4) | (10) | (13) |
|---|---|---|---|
| Freshmen | 0.5290 | -0.7958 | -0.0788 |
| Sophomores | -0.0737 | -0.0120 | -0.0174 |
| Juniors | 0.2191 | 0.4053 | -0.0948 |
| Seniors | 0.1133 | -0.4176 | 0.8539 |

*p < .05

### TABLE 15

### ANALYSIS OF VARIANCE OF IDEAL TEACHER TRAIT FACTORS ON THE BASIS OF "MAJOR" STUDY AREA

(SCI = 144, SOC = 107, HUM = 69, PROF = 147, EDUC = 109,
UNK = 42; m = 5, n = 612)

| Teacher Trait Factor | Variance/df Between | Variance/df Within | F-Ratio | High/Low |
|---|---|---|---|---|
| 1. Sincerity | 2.3930 | 1.8247 | 1.3115 | |
| 2. Stimulation | 1.1961 | 1.6976 | 0.7046 | |
| 3. Excitability | 6.4215 | 1.5625 | 4.1098** | SOC,HUM,ED/SCI |
| 4. Intimacy | 2.3132 | 1.7946 | 1.2890 | |
| 5. Grace | 1.8355 | 1.7630 | 1.0411 | |
| 6. Composure | 5.3880 | 1.7977 | 2.9972* | ED/SOC |
| 7. Confidence | 2.8749 | 1.7960 | 1.6007 | |
| 8. Activity | 1.3418 | 1.7991 | 0.7458 | |
| 9. Timidity | 1.9076 | 1.5440 | 1.2355 | |
| 10. Profundity | 6.1739 | 1.7469 | 3.5341 | SOC,HUM/SCI,ED |
| 11. Definiteness | 4.1075 | 2.0478 | 2.0058# | PROF/SOC,HUM |
| 12. Wit | 5.6793 | 2.1224 | 2.6759* | SOC/HUM,ED |
| 13. Inhibition | 1.3781 | 1.9484 | 0.7073 | |
| 14. Note Taking | 2.7108 | 2.3743 | 1.1417 | |
| 15. Communication | 3.3778 | 2.1627 | 1.5618 | |
| 16. Assertiveness | 0.3537 | 1.8505 | 0.1912 | |

Means (Standard Scores)

| | (3) | (6) | (10) | (11) | (12) |
|---|---|---|---|---|---|
| Science | -0.3848 | 0.1041 | -0.1749 | 0.0525 | 0.0782 |
| Soc. Sci. | 0.1557 | -0.2270 | 0.2592 | -0.1905 | 0.3100 |
| Humanities | 0.3002 | -0.0285 | 0.2599 | -0.2508 | -0.1679 |
| Profess. | 0.0386 | -0.1596 | 0.1317 | 0.2515 | 0.0175 |
| Education | 0.1254 | 0.3736 | -0.3268 | -0.1221 | -0.3677 |
| Unknown | -0.0310 | -0.1428 | -0.1000 | 0.1542 | 0.1105 |

#p < .10; *p < .05; **p < .01

the social sciences and the humanities rated this factor higher than average, while students majoring in the sciences and engineering rated this factor lower than average. However, students in education--contrary to reactions to Factor 3--rated Factor 10 lower than average.

Students included in the "Professional" major area of study differed substantially from group averages only on Factor 11 (direct, definite). They rated this factor higher than average. Conversely, students in the social sciences and the humanities rated this factor lower than average.

A number of interesting variations occur between students majoring in the social sciences and students majoring in education. As previously noted, those in social science rate Factor 10 (profound) high, while those in education rate it low. Similarly, those in social science rate Factor 12 (witty) high, while those in education rate it low. (Humanities students also rate this factor low.) Conversely, those in education rate Factor 6 (poised, relaxed) high, while those in social science rate this factor low.

To summarize, students majoring in education rate factors pertaining to "dynamism" and "composure" higher than group averages; and rate factors pertaining to "profundity" and "wit" lower than other groups. Students majoring in the social sciences are less concerned than others with factors pertaining to "composure" and "definiteness" but are more concerned with "dynamism," "profundity," and "wit." Students majoring in the humanities rate the factors of "dynamism" and "profundity" above the average of the groups; but rate "definiteness" below the group average. Students majoring in the sciences rate "dynamism" and "profundity" below the group averages. Lastly, students within what we have described as the "professional" group rate "definiteness" above the group average.

As noted earlier, the students who assisted in this first phase of the research by giving their conceptions of an Ideal Teacher were enrolled in several schools and colleges within Syracuse University. Table 16 shows the relationships between students enrolled in these academic units and the Teacher Trait factors. Significant differences between group means are indicated for five of the factors.

TABLE 16

ANALYSIS OF VARIANCE OF IDEAL TEACHER TRAIT FACTORS
ON THE BASIS OF SCHOOL OR COLLEGE ENROLLMENT
(LA = 371, BA = 60, SP = 84, HE = 26, ART = 20, EE = 24,
FOR = 4, NUR = 29; m = 7, n = 610)

| Teacher Trait Factor | Variance/df |  | F-Ratio | High/Low |
|---|---|---|---|---|
|  | Between | Within |  |  |
| 1. Sincerity | 3.0866 | 1.8148 | 1.7008 |  |
| 2. Stimulation | 2.5628 | 1.6835 | 1.5223 |  |
| 3. Excitability | 2.6254 | 1.5901 | 1.6511 |  |
| 4. Intimacy | 4.3510 | 1.7695 | 2.4589* | BA,SP,N/HE,A,EE |
| 5. Grace | 1.8784 | 1.7622 | 1.0659 |  |
| 6. Composure | 3.3455 | 1.8093 | 1.8490# | N,HE/A,EE,BA |
| 7. Confidence | 2.8228 | 1.7931 | 1.5743 |  |
| 8. Activity | 1.1671 | 1.8027 | 0.6474 |  |
| 9. Timidity | 1.1197 | 1.5519 | 0.7215 |  |
| 10. Profundity | 4.4187 | 1.7526 | 2.5213* | SP,EE/BA,HE |
| 11. Definiteness | 5.2186 | 2.0283 | 2.5729* | A,N,SP,HE/LA |
| 12. Wit | 0.6435 | 2.1685 | 0.2967 |  |
| 13. Inhibition | 2.7950 | 1.9340 | 1.4452 |  |
| 14. Note Taking | 2.7111 | 2.3732 | 1.1424 |  |
| 15. Communication | 4.1886 | 2.1495 | 1.9487# | EE,SP,N/LA,A |
| 16. Assertiveness | 1.4990 | 1.8422 | 0.8137 |  |

|  | Means (Standard Scores) |  |  |  |  |
|---|---|---|---|---|---|
|  | (4) | (6) | (10) | (11) | (15) |
| Liberal Arts | -0.0466 | 0.0440 | -0.0110 | -0.1617 | -0.1003 |
| Business Admin. | 0.2540 | -0.1354 | -0.3531 | 0.1033 | 0.0595 |
| Speech | 0.2565 | -0.0929 | 0.4123 | 0.1907 | 0.3193 |
| Home Economics | -0.5414 | 0.0839 | -0.5123 | 0.2018 | -0.0681 |
| Art | -0.4635 | -0.2468 | 0.0934 | 0.7020 | -0.6294 |
| Electric Eng. | -0.3084 | -0.5427 | 0.2071 | -0.0948 | 0.5169 |
| Forestry | 1.0403 | -0.6084 | -0.5796 | -0.4476 | 0.3594 |
| Nursing | 0.2438 | 0.6138 | 0.0273 | 0.6215 | 0.2522 |

#p < .10; *p < .05

Factor 4 (personal, intimate) is rated higher than average by students in speech, business administration, and nursing; but lower than average by students in art, engineering, and home economics. This result seems logical if one accepts the theory that, collectively, students in speech, business administration, and nursing expect and, indeed, look forward to engaging in a great number of interpersonal relations as they pursue their careers, whereas students in art, engineering, and home economics may be more self-sufficient and place less importance on involvement with, or recognition by, superiors.

Factor 6 (poised, relaxed) is rated higher than average by students in nursing and, to a lesser extent, students in home economics; but lower than average by students enrolled in art and engineering and, perhaps, business administration. However, it has already been noted that women rate this factor significantly higher than men. Since the sample of nursing and home economics students consists wholly of women, and art and engineering students wholly of men, sex rather than college is probably the dominant criterion in this instance.

Factor 10 (profound) is rated high by students in speech and engineering, but low by students in business administration and home economics.

Factor 11 (direct, definite) is rated high by students in speech, home economics, art, and nursing; but low by students in liberal arts. These differences would seem to be reflections of specific versus non-specific vocational goal orientation.

Factor 15 (clear, communicative) was rated high by students in speech, nursing, and engineering; but low by students in liberal arts and art. What appears to be an inconsistency in the case of students in art between the results of this factor and Factor 11 may be explained by the fact that most of the students were specializing in advertising design or fashion illustration. These people have the task of creating new ideas within quite specific and well-defined frameworks. They might, therefore, wish a teacher to be very definite in stating a theory or outlining a problem; but not wish for him to express his views so clearly and comprehensively that they would be left with no room for their own creative maneuvers.

To summarize, students in liberal arts rate factors pertaining to "definiteness" and "communication" lower than group averages. Students in engineering rate "communication" and "profundity" higher than average; but rate "intimacy" and "composure" lower than average. Students in nursing rate "communication," "definiteness," "intimacy," and "composure" higher than average. Students in speech rate "communication," "definiteness," "intimacy," and "profundity" higher than average. Students in home economics rate "composure" and "definiteness" higher than average; but rate "intimacy" and "profundity" lower than average. Students in business administration rate "intimacy" high; but "composure" and "profundity" low. Students in art rate "definiteness" high; but "intimacy," "composure," and "communication" low.

Similar classificatory data were collected during the several television teaching experiments. It may be recalled that Professor Ben Burtt presented his chemistry lecture twice by means of television and once in the classroom. A major problem to be studied was whether classes of students would perceive a teacher similarly when viewing him on television and directly in the lecture room. An earlier informal experiment had noted that variations in ratings on individual personality scales were obtained when classes rated a teacher under both conditions.[1] The Burtt chemistry experiment, with a more sophisticated design, not only identified specific teacher trait factors not available with the earlier study, but also afforded a means of comparing class scores under the two conditions of television and classroom presentation.

Students enrolled in the 8:00 A. M. and 11:00 A. M. sections saw the lecture by means of television. However, enrollment in the 8:00 A. M. section was restricted, generally, to students majoring in forestry. This section was therefore not used for comparisons against the 1:00 P. M. section which received the regular classroom lecture.

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[1] Myers, *op. cit.*, p. 33-35.

Table 5, page 44, compared the two experimental sections. It will be noted that each section contained approximately the same proportions of men and women. Freshmen, comprising a great bulk of the class, were evenly distributed between the sections. Students enrolled in the College of Liberal Arts and the College of Engineering were evenly distributed between the sections. Students planning to major in science or engineering were proportionally represented. Thus, on the basis of sex, year in school, college enrollment, and major study area, the two sections could be considered as comparable.

To determine whether students in the television lecture section rated the teacher significantly different from students in the classroom lecture section, an analysis of variance was computed between sections for each of the fifteen Teacher Trait factors identified in the Ben Burtt factor analysis. The results are shown in Table 17.

While there were slight tendencies for students in the television section to rate the teacher as more Stimulating and for students in the classroom section to rate the teacher as more Dynamic and Composed, these differences were not statistically significant. Further, no differences were noted on eight other factors.

Significant differences did occur, however, between the classes on four teacher personality traits. In the case of Professor Burtt, students who saw him on television rated him as more Personal and more Assertive than those who saw him in the classroom; conversely, students who saw Professor Burtt in the classroom rated him as more Forceful and more Witty than those who saw him on television.

The fact that Professor Burtt was judged to be more personal and intimate (as opposed to impersonal and remote) on television than he was in the classroom negates to some extent the argument that television is an impersonal medium. Two perceptual illusions appear to account for this finding.

If one considers that the televised lesson is actually originating beyond the confines of the classroom, then the physical distance from teacher to pupil is obviously increased beyond normal. Or, if one considers that the television set over which the teacher is presenting

## TABLE 17

## COMPARATIVE ANALYSIS OF TELEVISION SECTION AND CLASSROOM SECTION ON THE BASIS OF FIFTEEN TEACHER TRAIT FACTORS; PROFESSOR BEN BURTT EXPERIMENT

(TV Section = 242, Class Section = 231; m = 1, n = 471)

| | Variance/df | | F-Ratio | $(\bar{X}_{tv} - \bar{X}_{cl})$ |
|---|---|---|---|---|
| | Between | Within | | |
| Stimulation | 3.1991 | 1.8264 | 1.7516 | .1645 |
| Dynamism | 4.5006 | 2.3959 | 1.8785 | -.1952 |
| Confidence | 0.0056 | 1.6008 | 0.0035 | .0073 |
| Naturalness | 0.2085 | 1.6268 | 0.1282 | -.0421 |
| Friendliness | 1.9803 | 2.1466 | 0.9225 | .1295 |
| Intimacy | 15.0238 | 1.7453 | 8.6080** | .3566 |
| Forcefulness | 39.1286 | 2.3865 | 16.3960** | -.5754 |
| Control | 1.0317 | 2.2827 | 0.4520 | -.0935 |
| Profundity | 3.5211 | 2.5014 | 1.4076 | -.1727 |
| Assertiveness | 6.9223 | 2.1316 | 3.2475# | .2420 |
| Communication | 0.1464 | 2.3746 | 0.0616 | -.0352 |
| Composure | 3.7315 | 1.9126 | 1.9509 | -.1777 |
| Wit | 66.8605 | 2.0056 | 33.3367** | -.7522 |
| Directness | 1.2743 | 3.0178 | 0.4223 | .1039 |
| Ease of Note Taking | 1.9743 | 2.6729 | 0.7386 | .1292 |

Means and Sigmas

| | Intimacy | | Forcefulness | |
|---|---|---|---|---|
| Television Section | 0.0895 | 1.2726 | -0.2885 | 1.6252 |
| Classroom Section | -0.2671 | 1.3645 | 0.2869 | 1.4488 |

| | Assertiveness | | Wit | |
|---|---|---|---|---|
| Television Section | 0.0955 | 1.4274 | -0.1802 | 1.3562 |
| Classroom Section | -0.1465 | 1.4872 | 0.5720 | 1.4706 |

#p < .10; **p < .01

his lesson is located at the front of the room in the approximate area normally occupied by the classroom teacher, then the physical distance from teacher to pupil under the class and television conditions is approximately the same. However, one characteristic of television--the ability to change dimensions at will by use of the close-up--operates to accentuate the teacher. He can be made to appear larger than life.

Actually, if one were to measure the teacher's dimensions from hair to chin, one would find that on most conventional classroom television receivers the teacher would not exceed his real-life dimensions; but the illusion remains because the television screen has focused on the upper part of the body and eliminated the remainder from the frame.

A second factor reinforces the illusion. The good teacher in a classroom is careful to "scan" his audience in some regular pattern during his lecture. At various times he tries to establish "eye contact" with as many people as possible. But this activity is a function of space and time. He can look at only one student at a time. Any other student can sense his presence; but while the teacher may be talking with him, he is not, and cannot be, talking to him.

Not so on television, where the space-time barrier is effectively eliminated. Merely by looking at the lens of the camera, the teacher on television acquires the uncanny ability to look every student straight in the eye simultaneously. A one-to-one relationship exists between the teacher and as many students as are conscious of his presence on television.

Television, by its inherent characteristics, is a personal medium; and students perceive this attribute in a teacher properly utilizing it.

Professor Burtt, on television, was also rated significantly more assertive and aggressive (as opposed to restrained and timid) than in the classroom. This result may similarly be a function of the all-inclusive eye contact just described. The teacher is addressing the student for half an hour. He is constantly looking at him, never at another, giving him his undivided attention and expecting the same in return. Under the circumstances, some students might become a bit intimidated by the teacher. Certainly it is reasonable to suppose that the teacher might be judged to be more assertive and aggressive under these focused conditions than under the less psychologically rigid conditions that usually prevail in a classroom.

On page 45 is described the single deviation of class presentation from television presentation where, on a first trial, an experiment (steel ball traveling down an inclined plane and passing through a gate) failed, causing some spontaneous laughter. This single opportunity for students to laugh at--or, perhaps, in sympathy with--the teacher, and for him to respond pleasantly, appeared to have a significant effect on student reactions to the Teacher Trait factor of Wit. In the classroom, Professor Burtt was rated as much more witty and gay (as opposed to stolid and solemn) than he was on television. It is interesting to observe that one fleeting incident can significantly effect student responses on a factor.

Professor Burtt was also rated higher on the Teacher Trait factor of Forcefulness by students who saw him in the classroom than by students who saw him on television. The implication would appear to be that, in a limited sense, the television set may construct some type of electronic barrier between the teacher and the student. The teacher is behind a pane of glass, and the student thereby perceives him as a less forceful person than when the barrier is removed.

These few observed differences, while interesting, should not obscure the fact that, on the Teacher Trait factors of Stimulation, Dynamism, Confidence, Naturalness, Friendliness, Control, Profundity, Communication, Composure, Directness, and Ease of Note Taking, no significant differences were observed between ratings by students to whom Professor Burtt lectured by television and those to whom he lectured in the classroom.

The number of students involved in the three sections of the chemistry lecture was sufficient to permit a comparative analysis of the responses of several subgroups on the Teacher Trait factors. Women and men were analyzed separately on the basis of mode of presentation

## TABLE 18

### ANALYSIS OF VARIANCE (F-RATIOS)[a] FOR RATINGS OF PROFESSOR BEN BURTT ON FIFTEEN TEACHER TRAIT FACTORS BY SELECTED SUB-GROUPS

| Teacher Trait Factor | | Sex | | Presentation | | Location | | Liberal Arts (323) | Science/ Engineering (500) |
|---|---|---|---|---|---|---|---|---|---|
| | | Female (99) | Male (607) | TV (475) | Class (231) | Front (371) | Rear (335) | | |
| Stimulation | Female-Male | -- | -- | 0.1099 | 0.4723 | 0.0328 | 0.0169 | 0.0229 | 0.0015 |
| | TV-Class | 0.0513 | 1.7644 | -- | -- | 0.0104 | 2.9617[b] | 2.2634 | 1.6779 |
| | Front-Rear | 0.6222 | 1.4630 | 0.1401 | 4.4473[b] | -- | -- | 6.8282[b] | 5.9695[b] |
| Dynamism | Female-Male | -- | -- | 1.7224 | 1.9665 | 3.3282[b] | 0.8788 | 4.8637[b] | 1.3776 |
| | TV-Class | 0.1454 | 0.1114 | -- | -- | 0.4705 | 0.0439 | 2.0235 | 1.0456 |
| | Front-Rear | 0.6270 | 0.2464 | 0.2000 | 0.4243 | -- | -- | 0.0538 | 2.0328 |
| Confidence | Female-Male | -- | -- | 3.7332[b] | 0.2529 | 1.5915 | 1.8802 | 4.9589[b] | 2.5371 |
| | TV-Class | 1.3435 | 0.3974 | -- | -- | 0.1481 | 0.0614 | 0.6618 | 0.2757 |
| | Front-Rear | 0.0169 | 0.2149 | 0.0943 | 0.1178 | -- | -- | 0.1203 | 0.0477 |
| Naturalness | Female-Male | -- | -- | 0.3503 | 0.0138 | 0.0766 | 1.9669 | 0.0743 | 1.6550 |
| | TV-Class | 0.0094 | 1.2059 | -- | -- | 1.3291 | 0.1258 | 0.2470 | 5.9891[c] |
| | Front-Rear | 1.0828 | 0.0766 | 0.2416 | 0.1198 | -- | -- | 0.4874 | 2.0399 |
| Friendliness | Female-Male | -- | -- | 2.5844 | 0.0032 | 0.2462 | 1.5151 | 0.2022 | 0.0325 |
| | TV-Class | 0.7835 | 0.1511 | -- | -- | 0.0932 | 0.1514 | 2.1498 | 0.5925 |
| | Front-Rear | 0.1224 | 0.2633 | 0.2847 | 0.0557 | -- | -- | 0.3961 | 0.7000 |
| Intimacy | Female-Male | -- | -- | 0.1438 | 7.9957[b] | 0.9556 | 0.4520 | 1.6305 | 1.3842 |
| | TV-Class | 0.3809 | 21.6354[b] | -- | -- | 3.3809[b] | 13.0589[b] | 6.6087[b] | 10.3973[b] |
| | Front-Rear | 0.0291 | 0.0329 | 0.2345 | 2.4518 | -- | -- | 0.1930 | 1.1200 |
| Forcefulness | Female-Male | -- | -- | 0.4329 | 0.1041 | 0.1980 | 0.0020 | 0.5267 | 0.3199 |
| | TV-Class | 3.0344[c] | 9.8989[c] | -- | -- | 7.3489[c] | 4.6198[c] | 14.6581[c] | 5.0422[c] |
| | Front-Rear | 0.0170 | 1.3351 | 0.4482 | 0.3513 | -- | -- | 0.1426 | 0.6823 |
| Control | Female-Male | -- | -- | 0.1287 | 4.7633[b] | 0.9883 | 0.3071 | 0.2374 | 4.1873[c] |
| | TV-Class | 4.6186[b] | 0.0644 | -- | -- | 0.3222 | 0.8830 | 0.9523 | 1.7482 |
| | Front-Rear | 0.7620 | 1.9178 | 1.9795 | 0.4697 | -- | -- | 0.0858 | 0.0883 |

TABLE 18--Continued

| Teacher Trait Factor | | Sex | | Presentation | | Location | | Liberal Arts (323) | Science/ Engineering (500) |
|---|---|---|---|---|---|---|---|---|---|
| | | Female (99) | Male (607) | TV (475) | Class (231) | Front (371) | Rear (335) | | |
| Profundity | Female-Male | -- | -- | 1.2072 | 0.0004 | 0.5275 | 0.4424 | 0.2013 | 0.8829 |
| | TV-Class | 0.0009 | 3.1558$^{c}$ | -- | -- | 2.8262$^{c}$ | 0.4872 | 0.3782 | 3.0683$^{c}$ |
| | Front-Rear | 0.1364 | 0.9090 | 0.2140 | 0.9500 | -- | -- | 0.0090 | 2.1576 |
| Assertiveness | Female-Male | -- | -- | 0.0009 | 0.9969 | 0.2372 | 0.0014 | 0.5241 | 0.0536 |
| | TV-Class | 0.0098 | 4.1662$^{b}$ | -- | -- | 3.6321$^{b}$ | 0.7316 | 0.9468 | 1.4278 |
| | Front-Rear | 1.0605 | 3.2968$^{b}$ | 4.8592$^{b}$ | 0.5318 | -- | -- | 0.0530 | 4.4951$^{b}$ |
| Communication | Female-Male | -- | -- | 0.5361 | 0.8567 | 2.4464 | 0.0383 | 1.2447 | 2.2303 |
| | TV-Class | 0.4261 | 0.1643 | -- | -- | 0.3992 | 3.4582$^{c}$ | 0.0452 | 0.0133 |
| | Front-Rear | 0.9176 | 0.1193 | 1.1749 | 1.6884 | -- | -- | 2.4672 | 0.4322 |
| Composure | Female-Male | -- | -- | 0.1183 | 0.0000 | 0.1406 | 0.1067 | 3.3815$^{c}$ | 0.5715 |
| | TV-Class | 0.3645 | 2.5181 | -- | -- | 6.4143$^{c}$ | 0.0341 | 0.2219 | 3.6533$^{c}$ |
| | Front-Rear | 0.0065 | 0.0255 | 1.4102 | 2.6225 | -- | -- | 1.3532 | 0.0072 |
| Wit | Female-Male | -- | -- | 2.6238 | 0.0513 | 0.7339 | 1.0781 | 0.0224 | 0.4836 |
| | TV-Class | 18.5788$^{c}$ | 40.7431$^{c}$ | -- | -- | 29.0561$^{c}$ | 26.7384$^{c}$ | 27.7485$^{c}$ | 50.8256$^{c}$ |
| | Front-Rear | 1.8724 | 0.0381 | 0.0023 | 0.1465 | -- | -- | 0.5017 | 0.7573 |
| Directness | Female-Male | -- | -- | 3.3491$^{c}$ | 0.8956 | 2.9121$^{c}$ | 0.4772 | 0.2120 | 0.4606 |
| | TV-Class | 3.5155$^{c}$ | 0.7001 | -- | -- | 1.1960 | 1.7639 | 0.0161 | 0.2627 |
| | Front-Rear | 2.9270$^{c}$ | 0.1595 | 1.3670 | 1.6890 | -- | -- | 0.1268 | 0.8911 |
| Ease of Note Taking | Female-Male | -- | -- | 3.7017$^{b}$ | 3.3755$^{b}$ | 5.5983$^{b}$ | 1.1642 | 4.4596$^{b}$ | 2.3731 |
| | TV-Class | 0.1577 | 1.1309 | -- | -- | 0.2287 | 3.7201$^{b}$ | 0.3785 | 2.0224 |
| | Front-Rear | 1.6378 | 0.2282 | 0.0196 | 3.7610$^{b}$ | -- | -- | 0.0114 | 0.0228 |

$^{a}$P < .10 when F > 2.71; P < .05 when F > 3.84; P < .01 when F > 6.63

$\underline{\hspace{3em}}^{b}$ = Female > Male, TV > Class, or Front > Rear

$\underline{\hspace{3em}}^{c}$ = Female < Male, TV < Class, or Front < Rear and physical location in the lecture hall. Students receiving instruction by television were analyzed on the basis of sex and location, as were students receiving instruction in the classroom directly from Professor Burtt. Students located in the front and in the rear of the lecture hall were separately analyzed on the basis of sex and mode of presentation. Students enrolled in the College of Liberal Arts were analyzed on the basis of sex, mode of presentation, and location in the classroom. Students majoring in science or engineering were likewise analyzed on the three factors. The F-ratios resulting from these statistical comparisons are shown in Table 18.

Of 99 women who participated in the experiment, 52 saw Professor Burtt on television and 47 saw him in the classroom. Those in the class rated Professor Burtt significantly higher on the factors of Forcefulness, Wit, and Directness; but significantly lower on Control. Of 607 men who participated in the experiment, 423 saw Professor Burtt on television and 184 saw him in the classroom. Those in the class also rated him significantly higher on the factors of Forcefulness and Wit, and on Profundity; but significantly lower on Intimacy and Assertiveness. No matter whether enrolled in the television or classroom sections, no significantly different responses were made by men or women on the factors of Stimulation, Dynamism, Confidence, Naturalness, Friendliness, Communication, Composure, or Ease of Note Taking.

Of the 99 women, 56 were located in the Front of the lecture hall and 43 were located in the Rear. Of the 607 men, 315 were located in the Front and 292 were located in the Rear. Significant differences on the basis of location were observed on only one factor for each sex. Women located in the Rear of the classroom rated the professor as more Direct. Men located in the Front of the classroom rated the professor as more Assertive.

Four hundred and seventy-five students received the instruction by means of television. As has been noted, 52 of these were women and 423 were men. The women rated Professor Burtt significantly higher than the men on Confidence and Ease of Note Taking; but significantly lower on Directness. Of the 231 students who received the instruction in the regular classroom section, 47 were women and 184 were men. The women rated Professor Burtt significantly higher than the men on the factors of

Intimacy, Control, and Ease of Note Taking. No matter whether women or men, no significantly different responses were made by those receiving instruction by television or classroom presentation on the factors of Stimulation, Dynamism, Naturalness, Friendliness, Forcefulness, Profundity, Assertiveness, Communication, or Wit.

The arrangement of television monitors in the chemistry lecture room was previously described on page 43. It was hypothesized that the physical arrangement of television monitors would minimize variations in teacher ratings due to location. Of the 475 students receiving television instruction, 238 were seated in the front of the classroom and 237 were seated in the rear. On only one factor were significant differences observed. For some reason students located in the front tier of seats rated Professor Burtt as more Aggressive than those located in the rear tier of seats.

Students receiving instruction in the classroom situation saw Professor Burtt under normal circumstances. The 133 students located in the front tier of seats were in approximately the same physical relationship with respect to the teacher as were those in the same seats who saw him on television. However, the 98 students in the rear (upper) tier of seats were much further removed, physically, from the teacher. In fact, the distance was so great that Professor Burtt used a microphone to amplify his voice, with loud speakers being located at balcony, or second tier, level.

It was hypothesized that students in the rear of a large lecture hall--under ordinary class lecture conditions--might rate the teacher differently from those in the front. Such was the case on two--but only two--factors. Those located in the front, physically much nearer the teacher, rated him significantly higher on the factors of Stimulation, and Ease of Note Taking. (Neither of these differences was noted in the television sections.) While there were a number of tendencies for those in front to rate the teacher higher than those in the rear, none was statistically significant. If distance was a limitation, it is possible that the voice amplification may have partially offset it by making the verbal content of the teacher's lesson seem nearer than his physical presence.

Among the three sections of students participating in the experimental lesson, 371 were located in the front of the classroom. Of these, 56 were women and 315 were men. The women rated Professor Burtt significantly higher than the men on the factors of Dynamism and Ease of Note Taking; but significantly lower on Directness. It is not clear why these variations occurred. The 335 students located in the rear of the classroom included 43 women and 292 men. No significant differences were observed on any factor among these groups.

Students in the front of the class were also compared on the basis of the mode of presentation. There were 238 who were taught by Professor Burtt on television and 133 who were taught by him in the classroom. Students in the classroom rated the teacher higher on the factors of Forcefulness and Wit; but lower on the factor of Intimacy. (One recalls that similar results were obtained between matched whole classes.) Additionally, students in the classroom rated Professor Burtt higher on Profundity and Composure; but lower on Assertiveness.

Students in the rear of the class were likewise compared on the basis of the mode of presentation. There were 237 who were taught by Professor Burtt on television and 98 who were taught by him in the classroom. As with those in front, students in the classroom in the rear of the room rated the teacher higher on the factors of Forcefulness and Wit; but lower on the factor of Intimacy. Additionally, students in the classroom rated Professor Burtt higher on the factor of Communication; but lower on the factors of Stimulation and Ease of Note Taking. When one recalls that those in the rear were physically closer to the teacher on television than to the teacher in the classroom, the two additional factors favoring the television situation seem appropriate.

The 323 students enrolled in the College of Liberal Arts constituted a group sufficiently large to be analyzed on the basis of sex, mode of presentation, and location. The 87 women rated Professor Burtt significantly higher than the 236 men on the factors of Dynamism, Confidence, and Ease of Note Taking; but rated him lower on the factor of Composure. The 175 students who saw Professor Burtt on television rated him significantly higher than the 148 who saw him in the classroom on the factor of Intimacy; but rated him lower on the factors of Forcefulness and Wit.

The 178 students located in the front of the classroom rated Professor Burtt higher on the factor of Stimulation than the 145 students located in the rear of the classroom.

The 500 students who were "majoring" in science or engineering also constituted a group sufficiently large to be analyzed on the basis of sex, mode of presentation, and location. The 68 women rated Professor Burtt significantly higher than the 432 men on the factor of Confidence; but lower on the factor of Control. The 333 students who saw Professor Burtt on television rated him higher than the 167 who saw him in the classroom on the factor of Intimacy; but rated him lower on the factors of Naturalness, Forcefulness and Profundity. The 260 students located in the front of the classroom rated Professor Burtt higher on the factors of Stimulation and Assertiveness than the 240 students located in the rear of the classroom.

Student factor scores on the sixteen television teacher characteristics identified by the 333 students who participated in Professor Frank Funk's lecture were examined on the basis of six classification variables: course, sex, year in school, school or college in which enrolled, "major" area of study, and class section.

Professor Funk's lecture was presented to students enrolled in two types of public address courses. Public Address 51 was an introductory course available as an elective to any university student. Public Address 59 was similar to the former in most major aspects, but was offered specifically for, and limited to, students enrolled in the College of Business Administration. By their nature, therefore, differences noted between students in the two types of courses may be a reflection of sex (most business administration students being males) rather than some factor. Table 19 reports the results of a between-group analysis of variance for each of the 16 Teacher Trait factors identified in the Frank Funk experiment on the basis of the specific public address course in which each student was registered.

On two factors, students enrolled in PAD 51 (regular) rated Professor Funk significantly higher than students enrolled in PAD 59 (business administration only). The former rated him as more Natural (Factor 4--natural, effective, pleasant to listen to, and sincere)

### TABLE 19

### ANALYSIS OF VARIANCE OF PROFESSOR FRANK FUNK TEACHER TRAIT FACTORS ON THE BASIS OF COURSE

### (PAD 51 = 219, PAD 59 = 114; m = 1, n = 331)

| Teacher Trait Factor | Variance/df | | F-Ratio | Favors |
|---|---|---|---|---|
| | Between | Within | | |
| 1. Composure | 1.1162 | 1.2743 | 0.8759 | |
| 2. Stimulation | 0.4350 | 1.5159 | 0.2869 | |
| 3. Impressiveness | 0.0611 | 2.0324 | 0.0301 | |
| 4. Naturalness | 7.5748 | 1.9153 | 3.9550* | PAD 51 |
| 5. Intimacy | 0.6252 | 1.4458 | 0.4324 | |
| 6. Dynamism | 8.0960 | 1.8459 | 4.3859* | PAD 59 |
| 7. Activity | 15.3762 | 1.6012 | 9.6029** | PAD 51 |
| 8. Profundity | 1.2073 | 1.8154 | 0.6650 | |
| 9. Grace | 0.0998 | 2.0045 | 0.0498 | |
| 10. Communication | 3.1412 | 2.1627 | 1.4524 | |
| 11. Wit | 3.9394 | 1.8469 | 2.1329 | |
| 12. Forcefulness | 1.8369 | 1.9065 | 0.9635 | |
| 13. Ease of Note Taking | 0.4850 | 2.1521 | 0.2253 | |
| 14. Clarity | 1.5295 | 1.9010 | 0.8046 | |
| 15. Assertiveness | 0.4250 | 1.7693 | 0.2402 | |
| 16. Control | 2.4676 | 2.1079 | 1.1706 | |

| | Means | (Standard Scores) | |
|---|---|---|---|
| | (4) | (6) | (7) |
| PAD 51 | 0.1088 | -0.1125 | 0.1550 |
| PAD 59 | -0.2091 | 0.2161 | -0.2979 |

*p < .05; **p < .01

and as more Active (Factor 7--active). The PAD 59 students rated Professor Funk significantly higher on Factor 6 (Dynamism--dynamic and brilliant).

Table 20 reports the results of a between-group analysis of variance for each of the Frank Funk Teacher Trait factors on the basis of sex. There are no statistically significant differences in student ratings on eleven of the factors. However, there was a tendency for men to rate Professor Funk significantly higher than women on Factor 6 (Dynamism--dynamic and brilliant) and on Factor 15 (Assertiveness--assertive and aggressive). Reactions to Factor 6 are probably, as indicated previously, more a reflection of this sex difference than the course difference.

Women tended to rate Professor Funk significantly higher than men on Factor 12 (Forcefulness--enthusiastic and forceful). Women also rated Professor Funk statistically higher than men on Factor 13 (Ease of Note Taking) and on Factor 16 (Control--controlled and effective).

As was mentioned, the introductory course in public address was available to any undergraduate student in the university, although nearly all of the business administration students took the course as sophomores. Table 21 reports the results of an analysis of variance of scores on the sixteen teacher traits identified in the Frank Funk experiment on the basis of year in school.

Professor Funk was rated as relatively more Stimulating (Factor 2--interesting and exciting) to Freshmen and Juniors than to the other classes.

Reversals occurred with two factors. Freshmen rated Professor Funk relatively high on Factor 5 (Intimacy--personal and intimate) while Sophomores rated him relatively low on this factor. Conversely, Sophomores rated Professor Funk relatively high on Factor 6 (Dynamism--dynamic and brilliant) while Freshman rated him relatively low on this factor. Again, however, it is possible that these differences occurred primarily because of the large number of business administration men in the sophomore class.

An analysis of variance on the basis of college or school in which the students were enrolled was completed

## TABLE 20

## ANALYSIS OF VARIANCE OF PROFESSOR FRANK FUNK TEACHER TRAIT FACTORS ON THE BASIS OF SEX

(Female = 92, Male = 241; m = 1, n = 331)

| Teacher Trait Factor | Variance/df Between | Variance/df Within | F-Ratio | Favors |
|---|---|---|---|---|
| 1. Composure | 0.1110 | 1.2773 | 0.0869 | |
| 2. Stimulation | 0.0993 | 1.5169 | 0.0655 | |
| 3. Impressiveness | 3.2118 | 2.0229 | 1.5877 | |
| 4. Naturalness | 1.5571 | 1.9334 | 0.8054 | |
| 5. Intimacy | 0.0455 | 1.4476 | 0.0315 | |
| 6. Dynamism | 5.1418 | 1.8548 | 2.7721# | Male |
| 7. Activity | 3.8584 | 1.6360 | 2.3584 | |
| 8. Profundity | 3.7466 | 1.8077 | 2.0726 | |
| 9. Grace | 0.0017 | 2.0048 | 0.0009 | |
| 10. Communication | 3.2741 | 2.1623 | 1.5142 | |
| 11. Wit | 0.3204 | 1.8579 | 0.1725 | |
| 12. Forcefulness | 6.0399 | 1.8938 | 3.1892# | Female |
| 13. Ease of Note Taking | 31.9574 | 2.0570 | 15.5356** | Female |
| 14. Clarity | 1.9285 | 1.8998 | 1.0151 | |
| 15. Assertiveness | 4.9081 | 1.7557 | 2.7955# | Male |
| 16. Control | 16.7208 | 2.0649 | 8.0978** | Female |

| | Means (Standard Scores) (6) | (12) | (13) | (15) | (16) |
|---|---|---|---|---|---|
| Female | -0.2011 | 0.2180 | 0.5013 | -0.1965 | 0.3627 |
| Male | 0.0768 | -0.0832 | -0.1915 | 0.0750 | -0.1384 |

#p < .10; **p < .01

## TABLE 21

## ANALYSIS OF VARIANCE OF PROFESSOR FRANK FUNK TEACHER TRAIT FACTORS ON THE BASIS OF YEAR IN SCHOOL

(Frosh = 22, Soph = 186, Jr = 66, Sr = 55, Grad = 4; m = 4, n = 328)

| Teacher Trait Factor | Variance/df | | F-Ratio | Favors |
|---|---|---|---|---|
| | Between | Within | | |
| 1. Composure | 1.3806 | 1.2725 | 1.0849 | |
| 2. Stimulation | 3.5974 | 1.4873 | 2.4188# | Frosh, Jr |
| 3. Impressiveness | 0.2542 | 2.0481 | 0.1241 | |
| 4. Naturalness | 1.8990 | 1.9327 | 0.9825 | |
| 5. Intimacy | 3.5770 | 1.4173 | 2.5238# | Frosh (Soph-Low) |
| 6. Dynamism | 5.1473 | 1.8247 | 2.8209* | Soph (Frosh-Low) |
| 7. Activity | 1.6827 | 1.6422 | 1.0247 | |
| 8. Profundity | 2.7888 | 1.8016 | 1.5479 | |
| 9. Grace | 0.9445 | 2.0116 | 0.4695 | |
| 10. Communication | 1.6635 | 2.1717 | 0.7660 | |
| 11. Wit | 0.2334 | 1.8730 | 0.1246 | |
| 12. Forcefulness | 2.8383 | 1.8950 | 1.4978 | |
| 13. Ease of Note Taking | 1.6997 | 2.1526 | 0.7896 | |
| 14. Clarity | 0.1425 | 1.9213 | 0.0742 | |
| 15. Assertiveness | 1.3890 | 1.7698 | 0.7848 | |
| 16. Control | 1.1283 | 2.1210 | 0.5320 | |

| | Means (Standard Scores) | | |
|---|---|---|---|
| | (2) | (5) | (6) |
| Freshmen | 0.5667 | 0.4528 | -0.8992 |
| Sophomores | -0.1239 | -0.0980 | 0.1137 |
| Juniors | 0.2121 | 0.0784 | -0.0237 |
| Seniors | -0.0981 | 0.1484 | -0.0175 |
| Graduates | 0.4930 | -1.2643 | 0.2933 |

#p < .10; *p < .05

for the 333 students exposed to Professor Funk. Only one F-ratio tending toward significance appeared. Once again, this statistic ($F = 2.2311$, $p < .10$) was for Factor 6 Dynamism. Three major college groups--Speech, Liberal Arts, and Business Administration--accounted for 315 of the 333 students enrolled; and those in business administration rated Professor Funk substantially higher than did the students in the other academic units.

Students were classified into five broad areas of study based upon their choice of a "college major." These areas were labeled as science and engineering, social science, humanities, "professional," and education. An analysis of variance on the basis of major area of study was therefore completed for the 333 students who rated Professor Funk. Table 22 presents only those factors which proved to be statistically significant.

Students majoring in the social sciences rated Professor Funk as more Impressive, while students in the professions tended to rate him as more Dynamic. Students majoring in education rated him low on both factors.

In all, 21 sections of students, varying in class size from 10 to 31, comprised the 333 students who saw Professor Funk's lecture. An analysis of variance was performed for each of the Teacher Trait Factors on the basis of section. No F-ratios significant at the .05 level of confidence were obtained. Two of the factors--Intimacy and Profundity--produced F-ratios of 1.6926 and 1.6421, respectively, which were significant at the .10 level; but no consistent patterns were noted which were meaningful.

It may be of passing interest to note the reactions of several classes that were directly observed by the writer during the experimental lectures. Section 5 (Oct 22, 12:00 Noon) reacted spontaneously to the lecture, with considerable student interaction. The section rated Professor Funk similarly to the entire sample. On no factor did the means of the section exceed the grand mean by more than one-half of one standard score. Section 6 (Oct 22, 11:00 A. M.), by contrast, seemed quite lethargic. This section rated Professor Funk higher than average on Grace, and lower than average on Communication and Ease of Note Taking. One might subjectively have expected greater extremes of reaction from both sections.

## TABLE 22

## ANALYSIS OF VARIANCE OF PROFESSOR FRANK FUNK TEACHER TRAIT FACTORS ON THE BASIS OF MAJOR ACADEMIC STUDY AREA

| | NC | Factor 3--Impressiveness | | Factor 6--Dynamism | |
|---|---|---|---|---|---|
| | | Mean | Sigma | Mean | Sigma |
| Over-all | 333 | 0.000 | 1.4212 | 0.000 | 1.3635 |
| Science | 66 | -0.2004 | 1.4222 | -0.1462 | 0.9994 |
| Social Science | 30 | 0.7036 | 1.1111 | -0.0876 | 1.2197 |
| Humanities | 35 | 0.0860 | 1.3118 | -0.2304 | 1.4101 |
| Professional | 123 | -0.0188 | 1.4851 | 0.2724 | 1.3724 |
| Education | 38 | -0.3804 | 1.5351 | -0.4715 | 1.8972 |
| Unknown | 41 | 0.1433 | 1.1798 | 0.1161 | 1.0917 |
| Between Variance/df | | 4.8286 | | 4.3239 | |
| Within Variance/df | | 1.9837 | | 1.8271 | |
| F-Ratio | | 2.4342 = $p < .05$ | | 2.3665 = $p < .05$ | |

Section 10 (Feb 28, 8:00 P. M.) was a small but extremely volatile group of adults who reacted accordingly. Their teacher trait scores were higher than average on the factors of Stimulation, Naturalness, Dynamism, Profundity, and Ease of Note Taking; but lower than average on Impressiveness, Intimacy, and Grace.

Section 9 (Oct 22, 2:00 P. M.) was visited--unexpectedly, it may be added--by Professor Funk and a guest. No particular notice seemingly was made of this visit, and the students' reactions were similar to, and representative of, other sections. Professor Funk was rated by these students as relatively more Profound and Clear, and relatively less Witty.

Professor Funk also visited Section 12 (Oct 23, 11:00 A. M.). The instructor for this section reacted in rather remarkable--and, to the writer, rather obvious--fashion to the visit by her departmental chairman by indicating vocal approval of his televised lecture on a number of occasions. This "side-line cheerleading" may have had some effect upon student reactions, as they rated Professor Funk relatively higher on Naturalness, Activity, Forcefulness, and Ease of Note Taking, and relatively lower only on Profundity.

It will be recalled that 163 students enrolled in PAD 51 who saw Professor Funk also saw a televised lecture by Professor Irving Lee titled "Why Do People Misunderstand Each Other?" Table 23 shows the results of an analysis of variance for scores obtained on each Irving Lee trait on the basis of sex.

As with Professor Funk (and Professor Burtt earlier), women rated Professor Lee significantly higher on Ease of Note Taking (Factor 13). They also tended to rate him higher than men on Factor 14 (Clarity--*clear*).

Men were consistent with Factor 6 (Dynamism--*brilliant* and *dynamic*), rating Professor Lee significantly higher than women, as they did with Professor Funk.

There were also tendencies for men to rate Professor Lee relatively higher than women rated him on several other factors. These were Factor 3 (Impressiveness--*impressive* and *effective*), Factor 5 (Intimacy--*personal* and *intimate*), Factor 8 (Profundity--*profound*), and Factor 12 (Forcefulness--*enthusiastic* and *forceful*).

## TABLE 23

## ANALYSIS OF VARIANCE OF PROFESSOR IRVING LEE TEACHER TRAIT FACTORS ON THE BASIS OF SEX

(Female = 61, Male = 102; m = 1, n = 161)

| Teacher Trait Factor | Variance/df Between | Variance/df Within | F-Ratio | Favors |
|---|---|---|---|---|
| 1. Composure | 1.4675 | 2.4732 | 0.5934 | |
| 2. Stimulation | 0.6741 | 1.8137 | 0.3717 | |
| 3. Impressiveness | 6.4023 | 1.9706 | 3.2490# | Male |
| 4. Naturalness | 1.7126 | 1.8078 | 0.9473 | |
| 5. Intimacy | 4.4810 | 1.1950 | 3.7497# | Male |
| 6. Dynamism | 16.2733 | 2.0623 | 7.8909** | Male |
| 7. Activity | 0.0577 | 2.9342 | 0.0197 | |
| 8. Profundity | 4.5560 | 1.4644 | 3.1112# | Male |
| 9. Grace | 5.2328 | 2.2900 | 2.2851 | |
| 10. Communication | 0.7235 | 2.5779 | 0.2807 | |
| 11. Wit | 0.2987 | 2.0311 | 0.1470 | |
| 12. Enthusiasm | 8.9473 | 3.2584 | 2.7460# | Male |
| 13. Ease of Note Taking | 28.4273 | 2.8363 | 10.0226** | Female |
| 14. Clarity | 8.2601 | 2.9177 | 2.8311# | Female |
| 15. Assertiveness | 0.8074 | 1.7855 | 0.4522 | |
| 16. Control | 2.6686 | 1.8300 | 1.4582 | |

| | Means (Standard Scores) | | | | | | |
|---|---|---|---|---|---|---|---|
| | (3) | (5) | (6) | (8) | (12) | (13) | (14) |
| Female | -0.1723[a] | -0.3309 | -0.4044 | -0.1514 | -1.4423 | -0.1954 | -0.5407 |
| Male | 0.2372 | 0.0117 | 0.2486 | 0.1941 | -0.9581 | -1.0584 | -1.0059 |

[a] The mean is zero only when the original 333 cases are used.

#p < .10; **p < .01

The 163 students who rated Professor Irving Lee were studied on the basis of year in school. Variations in teacher ratings by class did not occur for any of the sixteen Teacher Trait Factors identified in the Frank Funk experiment. Confirming an earlier hypothesis, when the preponderance of men was eliminated from the sophomore class, year in school did not appear to be a critical variable.

The subsample of 163 students exposed to Professor Lee was studied on the basis of school or college in which enrolled. Results were similar to those obtained from the Funk analysis. Students exposed to Professor Lee responded to Factor 6, Dynamism, such that a significant F-ratio ($F = 2.9776$, $p < .05$) occurred. Students in business administration rated Professor Lee higher than students in the academic areas of speech and liberal arts.

The 163 students exposed to Professor Lee were also classified into five areas of academic study and their teacher ratings examined on this basis. Table 24 presents only the statistically significant factors.

The response pattern observed for Professor Lee differed somewhat from that observed for Professor Funk. On a relative basis, students majoring in education and the professions rated Professor Lee as more Active and more Assertive, while students majoring in the sciences, social sciences, and humanities rated him less Active and Assertive.

It may be concluded that the major academic areas of study in which students were engaged made relatively little difference in their ratings of Professor Lee or Professor Funk on personality characteristics. No significant variations were observed on 14 of 16 factors for each professor.

By way of review, of the original 333 exposed to Professor Funk, 163 rated Professor Irving Lee on the same 39 teacher trait scales comprising the original instrument. No separate factor analysis was computed from these data. Rather, using the Beta Weights provided by the Funk analysis, students' ratings of Professor Lee were converted to factor scores, in standard score units. By this technique, it thereby became possible to compare

## TABLE 24

## ANALYSIS OF VARIANCE OF PROFESSOR IRVING LEE TEACHER TRAIT FACTORS ON THE BASIS OF MAJOR ACADEMIC STUDY AREA

| | NC | Factor 7--Activity | | Factor 15--Assertiveness | |
|---|---|---|---|---|---|
| | | Mean | Sigma | Mean | Sigma |
| Over-all | 163 | -0.9736 | 1.7025 | -0.8538 | 1.3299 |
| Science | 26 | -1.3544 | 2.0683 | -1.1978 | 1.3486 |
| Social Science | 30 | -1.1972 | 1.6071 | -1.1852 | 1.2451 |
| Humanities | 34 | -1.3469 | 1.5487 | -1.1548 | 1.3732 |
| Professional | 36 | -0.5827 | 1.5978 | -0.3298 | 1.3640 |
| Education | 29 | -0.2677 | 1.3590 | -0.5306 | 0.0706 |
| Unknown | 8 | -1.6298 | 1.7082 | -0.7425 | 0.9805 |
| Between Variance/df | | 6.6805 | | 4.4929 | |
| Within Variance/df | | 2.7966 | | 1.6931 | |
| F-Ratio | | 2.3888 = F < .05 | | 2.6537 = P < .05 | |

directly the ratings of the 163 students to the two television teaching experiences. Table 25 summarizes the results.

On a comparative basis, Professor Funk made a greater impression on the students than Professor Lee. Professor Funk was rated statistically higher on the Teacher Trait factors of Stimulation, Activity, Grace, Communication, Forcefulness, Ease of Note Taking, Clarity, and Assertiveness, Conversely, Professor Lee was rated significantly higher on the factor of Naturalness. No significant differences were noted on the factors of Composure, Impressiveness, Intimacy, Dynamism, Profundity, Wit, or Control.

The first comment in explanation of these results is a reminder that the student ratings, of necessity, reflect their reactions not only to the teachers but also to the environmental situations in which they are placed. Viewing conditions were not dissimilar; but lesson content and production approaches were. Professor Funk, an extrovert by nature, attempted to capitalize on the inherent visual nature of the television medium by extensive personal demonstration, much "live action," use of blackboards, magnetic boards, and artwork to reinforce his carefully outlined verbal presentation. Professor Lee utilized a blackboard, on which he drew a diagram, and handled some small objects. He tended to remain fixed within a small working area. It is, therefore, not surprising that students rated Professor Funk--in the space-time context in which he lectured--higher than Professor Lee on the factors noted.

Professor Lee, a quieter individual by nature, attempted to capitalize on the inherent personal nature of the television medium.[1] He used a quiet and "reasoned" approach that made skillful use of medium close-ups where fleeting expression and gesture reinforced nuances of speech. He avoided set detail. Most of his illustrations were verbal rather than visual lessons. A casual observer might have concluded that Lee was "talking" whereas Funk was "acting." The students, certainly, believed that Professor Lee was more natural.

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[1] Discussion of this characteristic of Intimacy as it affected the experimental lectures of Professor Ben Burtt appears on pages 87-89.

TABLE 25

COMPARISON OF TEACHER TRAIT FACTOR SCORES ASSIGNED TO FRANK FUNK AND IRVING LEE BY 163 STUDENTS

| Teacher Trait | Standard Scores | | | $\sigma_D$ | t |
|---|---|---|---|---|---|
| | Funk | Lee | Diff (F-L) | | |
| 1. Composure | -0.0284[a] | 0.0999[b] | -0.1283 | 1.9250 | 0.850 |
| 2. Stimulation | 0.0240 | -0.4095 | 0.4335 | 1.6932 | 3.269 |
| 3. Impressiveness | -0.0078 | 0.0840 | -0.0918 | 1.7584 | 0.666 |
| 4. Naturalness | 0.1114 | 0.5068 | -0.3954 | 1.9766 | 2.555 |
| 5. Intimacy | -0.0128 | -0.1165 | 0.1037 | 1.3701 | 0.966 |
| 6. Dynamism | -0.2050 | 0.0042 | -0.2092 | 1.5895 | 1.680 |
| 7. Activity | 0.1438 | -0.9736 | 1.1174 | 2.0028 | 7.122 |
| 8. Profundity | -0.1187 | 0.0648 | -0.1835 | 1.5037 | 1.558 |
| 9. Grace | 0.0248 | -0.7207 | 0.7455 | 2.0195 | 4.712 |
| 10. Communication | -0.1009 | -0.6299 | 0.5290 | 2.1476 | 3.145 |
| 11. Wit | 0.1161 | -0.0365 | 0.1526 | 1.6461 | 1.184 |
| 12. Forcefulness | 0.0611 | -1.1393 | 1.2004 | 2.2146 | 6.919 |
| 13. Ease of Note Taking | 0.0585 | -0.7354 | 0.7939 | 2.0791 | 4.877 |
| 14. Clarity | -0.0550 | -0.8318 | 0.7768 | 1.8976 | 5.093 |
| 15. Assertiveness | 0.0242 | -0.8538 | 0.8780 | 1.4543 | 7.709 |
| 16. Control | 0.1557 | 0.2789 | -0.1232 | 1.7872 | 0.880 |

[a] Factor scores by 163 respondents based on Beta Weights produced from the original sample of 333 respondents rating Frank Funk. The mean score for each factor would equal zero if all 333 cases were included.

[b] Factor scores for Irving Lee are produced using the Frank Funk Beta Weights.

And yet, despite Lee's more subdued approach, neither professor was rated above the other on the factor of Intimacy. Although their approaches were quite different, each recognized the camera lens as representing the eye of one student and spoke to it--and thus to individuals in the classrooms--directly. It would appear that the recognition and use of the one-to-one teacher-student methodology on television is at least as important, if not more so, as production methods when capitalizing on the personal characteristics of the medium.

Student factor scores on the 12 teacher characteristics identified by the 260 students who participated in Professor Sheldon's lecture were examined on the basis of six classification variables: sex, year in school, college, major area of study, section, and SAT scores.

Table 26 reports the results of a between-group analysis of variance for each of the 12 Teacher Trait factors and the SAT scores on the basis of sex. Relatively few significant differences were noted. Women tended to rate Professor Sheldon significantly higher than men on Factor 2 (poised, relaxed) and on Factor 12 (controlled). These are in substantial agreement with the reaction of women to Professors Burtt and Funk. Men rated Professor Sheldon significantly higher than women on Factor 6 (sociable, friendly).

Whereas women rated Professors Burtt and Funk higher than men on the factor of Ease of Note Taking, no differences due to sex were observed in this experiment. One may presume that the production technique devised for this lecture assisted both groups in note taking to the extent that sex differences potentially inherent were erased.

Table 27 shows the results of a between-group analysis of variance of the teacher traits and SAT verbal scores on the basis of year in school. Actually, one-tenth of the class was composed of sophomores and the remaining nine-tenths of freshmen; so the analysis compares these two groups. One should recognize that the relatively small sample of sophomores mitigates against conclusive results.

## TABLE 26

## ANALYSIS OF VARIANCE OF PROFESSOR WILLIAM SHELDON TEACHER TRAIT FACTORS ON THE BASIS OF SEX

(Female = 93, Male = 167; m = 1, n = 258)

| Factor | Variance/df Between | Variance/df Within | F-Ratio | Favors |
|---|---|---|---|---|
| 1. Stimulation | 0.0287 | 1.3664 | 0.0210 | |
| 2. Composure | 4.5077 | 1.2879 | 3.4999# | Female |
| 3. Communication | 0.0035 | 1.5498 | 0.0023 | |
| 4. Dynamism | 1.0101 | 1.7288 | 0.5843 | |
| 5. Wit | 2.9251 | 1.5891 | 1.8407 | |
| 6. Style | 7.7874 | 1.7713 | 4.3963* | Male |
| 7. Profuncity | 3.3054 | 1.8441 | 1.7924 | |
| 8. Ease of Note Taking | 0.7251 | 1.6031 | 0.4523 | |
| 9. Friendliness | 1.3049 | 1.8100 | 0.7210 | |
| 10. Assertiveness | 0.0150 | 1.7808 | 0.0084 | |
| 11. Intimacy | 0.2912 | 1.7623 | 0.1652 | |
| 12. Control | 10.8589 | 1.8895 | 5.7469* | Female |
| SAT Verbal Score | 109.7578 | 3427.1327 | 0.0320 | |

| | Means (Standard Scores) (2) | (6) | (12) |
|---|---|---|---|
| Female | 0.1764 | -0.2319 | 0.2739 |
| Male | -0.0983 | 0.1291 | -0.1525 |

#p < .10; *p < .05

### TABLE 27

### ANALYSIS OF VARIANCE OF PROFESSOR WILLIAM SHELDON TEACHER TRAIT FACTORS ON THE BASIS OF YEAR IN SCHOOL

(Freshmen = 235, Sophomores = 26; m = 1, n = 258)

| Factor | Variance/df | | F-Ratio | Favors |
|---|---|---|---|---|
| | Between | Within | | |
| 1. Stimulation | 0.6952 | 1.3638 | 0.5098 | |
| 2. Composure | 0.6286 | 1.3030 | 0.4824 | |
| 3. Communication | 0.8616 | 1.5464 | 0.5572 | |
| 4. Dynamism | 0.3674 | 1.7313 | 0.2122 | |
| 5. Wit | 0.5566 | 1.5983 | 0.3482 | |
| 6. Style | 2.7978 | 1.7907 | 1.5624 | |
| 7. Profundity | 1.8548 | 1.8479 | 1.0028 | |
| 8. Ease of Note Taking | 0.9999 | 1.6020 | 0.6242 | |
| 9. Friendliness | 9.1256 | 1.7797 | 5.1277* | Freshmen |
| 10. Assertiveness | 1.6873 | 1.7743 | 0.9510 | |
| 11. Intimacy | 6.3059 | 1.7390 | 3.6262# | Sophomores |
| 12. Control | 2.9594 | 1.9201 | 1.5412 | |
| SAT Verbal Score | 12993.5625 | 3377.1954 | 3.8474* | Sophomores |

| | Means (Standard Scores) | | |
|---|---|---|---|
| | (9) | (11) | (SAT-raw) |
| Freshmen | 0.0624 | -0.0519 | 444.7821 |
| Sophomores | -0.5620 | 0.4672 | 468.3462 |

#p < .10; *p < .05

Only two significant differences in the means of the groups were observed. Freshmen rated Professor Sheldon higher on Factor 9 (sincerity) than sophomores. Conversely, sophomores tended to rate Professor Sheldon higher on Factor 11 (personal, intimate) than did freshmen.

Sophomores, parenthetically, scored higher on the SAT verbal test than freshmen. Both groups were approximately 100 points below the average scores for their classes.

When students were first grouped according to the school or college in which they were enrolled, few students were found to be enrolled in academic units other than liberal arts. Those outside liberal arts were therefore grouped, and the total sample consisted of 222 students in liberal arts and 38 in all other units. A between-group analysis of variance indicated no significant differences on any teacher trait for this classification variable.

Many of the students, particularly the "first term" freshmen, had not yet decided upon their major area of study at the time of Professor Sheldon's lecture. As a result, only 175 of the 260 students indicated a specific academic department in which they planned to major. These were tentatively classified as follows: science--69, social science--26, humanities--8, professional--33, and education--39. A between-group analysis of variance indicated no significant differences on any teacher trait with one possible exception. There was a tendency ($p < .10$) for those students intending to major in the social sciences, humanities, and education to rate the teacher higher on Factor 12 (controlled) than those intending to major in the sciences or professions.

Class size in the 19 sections varied from 5 to 21, and variations within the sections were sufficiently large in comparison to variations between the class means to negate finding significant F-ratios on any Teacher Trait factor. The sections were therefore collapsed into two sets consisting of the 12 sections who participated in the experiment in the fall and the 9 sections who participated in the spring. The sets consisted of 185 fall students and 75 spring students. A between-group analysis of variance was calculated for the teacher traits and SAT verbal score on this new classification variable. The results are shown in Table 28.

## TABLE 28

### ANALYSIS OF VARIANCE OF PROFESSOR WILLIAM SHELDON TEACHER TRAIT FACTORS ON THE BASIS OF FALL-SPRING EXPOSURE
(Fall = 185, Spring = 75; m = 1, n = 258)

| Factor | Variance/df | | F-Ratio | Favors |
|---|---|---|---|---|
| | Between | Within | | |
| 1. Stimulation | 2.5646 | 1.3565 | 1.8906 | |
| 2. Composure | 1.8481 | 1.2982 | 1.4235 | |
| 3. Communication | 0.4209 | 1.5481 | 0.2719 | |
| 4. Dynamism | 1.7701 | 1.7259 | 1.0256 | |
| 5. Wit | 2.4926 | 1.5908 | 1.5669 | |
| 6. Style | 15.4742 | 1.7415 | 8.8853** | Fall |
| 7. Profundity | 2.8646 | 1.8458 | 1.5519 | |
| 8. Ease of Note Taking | 0.4907 | 1.6040 | 0.3059 | |
| 9. Friendliness | 0.4580 | 1.8132 | 0.2526 | |
| 10. Assertiveness | 10.6264 | 1.7397 | 6.1083* | Fall |
| 11. Intimacy | 0.5708 | 1.7612 | 0.3241 | |
| 12. Control | 0.0414 | 1.9315 | 0.0214 | |
| SAT Verbal Score | 317402.7500 | 2197.3148 | 144.4503** | Spring |

| | Means (Standard Scores) | | |
|---|---|---|---|
| | (6) | (10) | (SAT-raw) |
| Fall | 0.1553 | 0.1287 | 424.8919 |
| Spring | -0.3832 | -0.3175 | 502.0133 |

*p < .05; **p < .01

Students participating in the experimental lecture by Professor Sheldon in the fall semester rated the teacher higher on Factor 6 (*sociable*, *friendly*) and higher on Factor 10 (*assertive*, *authoritative*, and *demonstrative*) than did the students participating in the spring semester. The students in the spring sections had much higher scores, on the average, on the verbal section of the Scholastic Aptitude Test. This clear indication of difference in verbal ability did not appear to affect the other results.

The final classification variable was arbitrarily imposed on the SAT data. Students were trichotomized into one set with SAT scores of 450 or more, another set with scores from 400 to 449, and a third set with scores of 399 or less. A between-group analysis of variance was then performed on the teacher traits on the basis of these SAT categories. The results are shown in Table 29.

Significant mean differences were observed for the factor of Sociability. Students with low SAT scores rated Professor Sheldon as more sociable and friendly, while students with high SAT scores rated him as less sociable than did those students with mid-range SAT scores. Factor 10 (*assertive*, *authoritative*, and *demonstrative*) also produced a significant result. Students with both high and low SAT scores rated Professor Sheldon as less assertive than the median set.

The huge F-ratio for SAT scores merely indicates the obvious: that the high set had a higher average score than the median set which, in turn, had a higher average score than the low set.

Of the 558 students who participated over a three-year period in the television experiment involving Professor Lawrence Myers and Professor Charles Siepmann, 352 were exposed to Myers and 206 to Siepmann. As described previously, these data produced thirteen Teacher Trait factors. Student factor scores relating to the Myers lecture were compared on the basis of sex, year in school, and college.

Table 30 reports the results of an analysis of variance for the thirteen factors on the basis of sex. Relatively few significant differences were noted. Men rated Professor Myers significantly higher on Factor 5

## TABLE 29

### ANALYSIS OF VARIANCE OF PROFESSOR WILLIAM SHELDON TEACHER TRAIT FACTORS ON THE BASIS OF SAT VERBAL SCORES

(High SAT = 96, Middle SAT = 124, Low SAT = 41; m = 2, n = 257)

| Factor | Variance/df | | F-Ratio | Favors |
|---|---|---|---|---|
| | Between | Within | | |
| 1. Stimulation | 0.9149 | 1.3647 | 0.6704 | |
| 2. Composure | 1.7165 | 1.2971 | 1.3233 | |
| 3. Communication | 0.7256 | 1.5502 | 0.4681 | |
| 4. Dynamism | 0.4949 | 1.7356 | 0.2851 | |
| 5. Wit | 0.8057 | 1.6004 | 0.5035 | |
| 6. Style | 7.7789 | 1.7480 | 4.4502* | Low SAT |
| 7. Profundity | 3.6040 | 1.8361 | 1.9629 | |
| 8. Ease of Note Taking | 1.7341 | 1.5987 | 1.0847 | |
| 9. Friendliness | 1.0625 | 1.8138 | 0.5858 | |
| 10. Assertiveness | 6.5178 | 1.7371 | 3.7522* | Middle SAT |
| 11. Intimacy | 0.8513 | 1.7636 | 0.4827 | |
| 12. Control | 1.0877 | 1.9307 | 0.5634 | |
| SAT Verbal Score | 296739.7148 | 1131.6364 | 262.2218** | High SAT |

| | Means (Standard Scores) | | |
|---|---|---|---|
| | (6) | (10) | (SAT-raw) |
| High SAT | -0.3055 | -0.1742 | 504.5000 |
| Middle SAT | 0.1273 | 0.2306 | 427.0645 |
| Low SAT | 0.3386 | -0.2969 | 371.7000 |

*p < .05; **p < .01

## TABLE 30

## ANALYSIS OF VARIANCE OF RATINGS TO PROFESSOR LAWRENCE MYERS, UTILIZING MYERS-SIEPMANN TEACHER TRAIT FACTORS, BASED ON SEX DIFFERENCES

(Female = 134, Male = 218; m = 1, n = 350)

| Factor | Standard Scores | | F-Ratio |
|---|---|---|---|
| | Female | Male | |
| 1. Stimulation | 0.0885 | -0.0544 | 1.523 |
| 2. Assertiveness | 0.0277 | -0.0170 | 0.144 |
| 3. Wit | -0.0780 | 0.0480 | 1.840 |
| 4. Profundity | -0.0793 | 0.0487 | 0.786 |
| 5. Communication | -0.2518 | 0.1548 | 8.371* |
| 6. Intimacy | 0.0332 | -0.0204 | 0.184 |
| 7. Organization | 0.1693 | -0.1041 | 6.006* |
| 8. Composure | 0.0451 | -0.0277 | 0.345 |
| 9. Dynamism | -0.0125 | 0.0077 | 0.023 |
| 10. Friendliness | 0.2427 | -0.1492 | 11.809* |
| 11. Directness | 0.0470 | -0.0291 | 0.479 |
| 12. Confidence | 0.0107 | -0.0066 | 0.014 |
| 13. Control | -0.0929 | 0.0571 | 9.964 |

*p < .05

(strong, graceful, communicative) than did women. Women rated him significantly higher on Factor 7 (easy to take notes, clear) and on Factor 10 (friendly, sociable) than did men. In three of the four experiments, women have rated the professors significantly higher than men on ease of note taking. One may recall that women also believed that this attribute was more important in an Ideal Teacher than did men.

The 352 students who rated Professor Myers were analyzed in two ways on the basis of year in school. The course for which the lecture was prepared was developed primarily for freshmen and sophomores, although lesser numbers of upperclassmen enroll in it for elective credit. The lecture was also shown to graduate students in order to augment the sample. Table 31 shows the results of an analysis of variance on the basis of year in school. The primary audience rated Professor Myers higher on Factor 1 (stimulating, interesting) and on Factor 8 (poised, relaxed) than did the graduate students. Conversely, graduate students rated the lecturer higher on Factor 5 (strong, graceful, communicative) and on Factor 13 (controlled).

In order to achieve an adequate sample, it will be recalled that not only were graduate students asked to rate the Myers lecture but also a class of freshmen enrolled in the introductory course offered by the School of Journalism were assembled to view the presentation and react to it. Comparisons between these specialized groups and the students regularly enrolled in the course are shown in Table 32. Significant differences between the means of the three groups on ten of thirteen factors suggests that the context, or environment, in which students view a teacher will influence their ratings of him. We have already noted the factors in which graduate students varied significantly from others. Table 33 shows that the regularly enrolled students rated Professor Myers relatively near the grand mean on all factors with the possible exception of Factor 1 (stimulating, interesting), where his standard score was higher than the other groups. However, extensive variations from the average ratings were obtained from the journalism freshmen. Professor Myers was seen to be more Assertive, Organized, and Friendly by these students than by the other groups; but he was also seen to be much less Stimulating, Witty, Profound, Confident, and Controlled. One can only surmise

## TABLE 31

## ANALYSIS OF VARIANCE OF RATINGS TO PROFESSOR LAWRENCE MYERS, UTILIZING MYERS-SIEPMANN TEACHER TRAIT FACTORS, BASED ON SCHOOL YEAR

(Freshmen = 133, Sophomores = 66, Upperclass = 71,
Graduates = 82; m = 3, n = 348)

| Factor | Standard Scores | | | | F-Ratio |
|---|---|---|---|---|---|
| | Frosh | Soph | Upperclass | Grads | |
| 1. Stimulation | -.0271 | .2737 | .0363 | -.2078 | 2.631* |
| 2. Assertiveness | .1493 | -.0598 | .0062 | -.1993 | 1.881 |
| 3. Wit | -.0348 | .0272 | -.0907 | .1131 | 0.856 |
| 4. Profundity | .0503 | -.1729 | -.0194 | .0743 | 0.536 |
| 5. Communication | -.0995 | -.0195 | -.2398 | .3846 | 3.573* |
| 6. Intimacy | -.0536 | -.1486 | -.0545 | .1594 | 1.068 |
| 7. Organization | -.0068 | -.0199 | .0099 | .0185 | 0.021 |
| 8. Composure | .1123 | .0917 | .0009 | -.2568 | 2.024* |
| 9. Dynamism | .0953 | -.1105 | .0592 | -.1169 | 0.755 |
| 10. Friendliness | .1241 | -.2001 | -.1114 | .0562 | 1.757 |
| 11. Directness | -.0498 | -.0804 | .0139 | .1333 | 0.730 |
| 12. Confidence | .0023 | -.2585 | -.0016 | .2057 | 1.523 |
| 13. Control | -.3236 | .0818 | -.1673 | .6038 | 8.478* |

*p < .05

## TABLE 32

### ANALYSIS OF VARIANCE OF RATINGS TO PROFESSOR LAWRENCE MYERS, UTILIZING MYERS-SIEPMANN TEACHER TRAIT FACTORS, BASED ON THREE COMPARISON GROUPS

(Graduates = 82, Journalism Freshmen = 60, Regular Students = 210,
m = 2, n = 349)

| Factor | Standard Scores | | | F-Ratios |
|---|---|---|---|---|
| | Graduates | Journalism | Regular | |
| 1. Stimulation | -.2078 | -.4086 | .1979 | 10.290* |
| 2. Assertiveness | -.1993 | .2788 | -.0018 | 3.484* |
| 3. Wit | .1131 | -.3880 | .0667 | 7.984* |
| 4. Profundity | .0743 | -.4207 | .0912 | 3.766* |
| 5. Communication | .3846 | -.2103 | -.0901 | 5.040* |
| 6. Intimacy | .1594 | -.0983 | -.0341 | 1.127 |
| 7. Organization | .0185 | .4702 | -.1416 | 8.728* |
| 8. Composure | -.2568 | -.0782 | .1226 | 3.571* |
| 9. Dynamism | -.1169 | .1699 | -.0029 | 0.957 |
| 10. Friendliness | .0562 | .2338 | -.0887 | 2.351* |
| 11. Directness | .1333 | .0660 | -.0709 | 1.370 |
| 12. Confidence | .2057 | -.4449 | .0468 | 4.656* |
| 13. Control | .6038 | -.5532 | -.0777 | 13.728* |

*$p < .05$

that these variations in ratings occurred because of the out-of-normal class context in which they were made. This evidence suggests that teachers should be rated only by students for whom their lectures are intended.

Finally, the Myers data were analyzed on the basis of undergraduate school or college. Among the 352 students who participated, 107 were enrolled in the College of Liberal Arts and 135 in the School of Speech and Dramatic Art. Table 33 compares student ratings of Professor Myers based on this factor. Those students enrolled in the School of Speech rated Professor Myers as significantly more Stimulating, Profound, Composed, and Confident than did students in Liberal Arts. The latter rated Professor Myers as more Organized and Friendly.

The design for the Myers experiment also permitted an examination of first-order interactions between sex and year, sex and group, and sex and school. Among all the possibilities, relatively few significant interactions, and few consistent patterns of response, were noted. Women in Liberal Arts and men in Speech rated Professor Myers higher on intimacy, directness and confidence than did the other subgroups. Women among the freshmen Journalism students rated him as more witty, confident, and controlled. Sophomore women rated Professor Myers as more controlled and composed. Freshmen men also rated him as more composed. Thus, principal interactions were noted only for the relatively less important factors of control and composure, with women in certain subgroups tending to give the higher ratings.

The average ratings of students exposed to Professor Myers and Professor Siepmann are shown in standard score units in Table 34. A statistical analysis of the data was carried out only for the total Myers data, as inferences could automatically be drawn about the remaining data from these results. A significant F-ratio indicates that the rating is greater (or less) than zero, and that Myers exceeds (or is less than) Siepmann on the factor under consideration. Thus students rated Professor Myers as significantly higher on the factors of Assertiveness, Wit, Organization, Friendliness, and Directness; while they rated Professor Siepmann significantly higher on the factors of Profundity and Control. On a smaller sample (N = 206) comparative basis, Myers also appears to exceed Siepmann on the factors of Stimulation and Confidence.

## TABLE 33

## ANALYSIS OF VARIANCE OF RATINGS TO PROFESSOR LAWRENCE MYERS, UTILIZING MYERS-SIEPMANN TEACHER TRAIT FACTORS, BASED ON COLLEGE

(Liberal Arts = 107, Speech = 135; m = 1, n = 240)

| Factor | Standard Scores | | |
|---|---|---|---|
| | Liberal Arts | Speech | F-Ratios |
| 1. Stimulation | -.1337 | .1060 | 2.557* |
| 2. Assertiveness | .0684 | -.0542 | 0.734 |
| 3. Wit | -.0858 | .0680 | 1.758 |
| 4. Profundity | -.2110 | .1673 | 4.109* |
| 5. Communication | -.0558 | .0442 | 0.307 |
| 6. Intimacy | -.0634 | .0503 | 0.515 |
| 7. Organization | .1517 | -.1202 | 3.841* |
| 8. Composure | -.1732 | .1373 | 4.074* |
| 9. Dynamism | .1015 | -.0805 | 1.254 |
| 10. Friendliness | .1245 | -.0987 | 2.431* |
| 11. Directness | -.0086 | .0068 | 0.012 |
| 12. Confidence | -.1627 | .1290 | 2.364* |
| 13. Control | -.1508 | .1195 | 1.968 |

*$p < .05$

## TABLE 34

## COMPARISONS OF PROFESSORS MYERS AND SIEPMANN ON THIRTEEN TELEVISION TEACHER TRAIT FACTORS

| Factor | Standard Scores[a] | | | |
|---|---|---|---|---|
| | Siepmann (N=206) | Myers (N=200) | Myers (N=352) | F-Ratio (Myers, N=352) |
| 1. Stimulation | -.0908 | .2398 | .0531 | 0.892 |
| 2. Assertiveness | -.2461 | .1404 | .1440 | 6.332[b] |
| 3. Wit | -.8739 | .5816 | .5114 | 128.359[b] |
| 4. Profundity | .1851 | -.0211 | -.1083 | 2.389[b] |
| 5. Communication | -.1587 | .0350 | .0929 | 1.814 |
| 6. Intimacy | -.0241 | .0122 | .0141 | 0.054 |
| 7. Organization | -.4387 | .0937 | .2567 | 22.160[b] |
| 8. Composure | -.0755 | .1274 | .0442 | 0.542 |
| 9. Dynamism | -.1132 | .0308 | .0662 | 1.036 |
| 10. Friendliness | -.2985 | .0826 | .1747 | 9.650[b] |
| 11. Directness | -.2543 | .0879 | .1488 | 7.678[b] |
| 12. Confidence | -.0920 | .1888 | .0538 | 0.589 |
| 13. Control | .4071 | -.2951 | -.2383 | 10.329[b] |

[a] The grand mean comprising the average of the sum of the Myers (N=352) scores and the Siepmann (N=206) scores, is 0.0000 for all factors, when expressed in standard score units.

[b] The F-ratio signifies that the mean of the Myers (N=352) scores is significantly different from zero at the .05 level of confidence or beyond.

In the final experiment, a class of 82 students not only saw Professors Myers and Siepmann on television but also five other faculty members of the Television and Radio Department. Student ratings on the basis of sex are shown in Table 35. When reacting to a series of teachers on television, men rated them, as a group, higher on factors of Profundity, Stimulation, and Dynamism than did women. Women rated teachers higher than men on the factors of Communication and Friendliness. In terms of individual rating scales, men tended to rate teachers as more strong, enthusiastic, profound, confident, brilliant, and impressive than did women. Women rated television teachers, as a whole, as more warm and sociable.

When comparing student reactions to individual teachers, one must be cautioned that only a relative--not absolute--comparison is possible, as all means were expressed in standard score units with the grand mean equalling zero. To say that one person is rated higher, or lower, than another is not to praise one or condemn another, as both, in relation to other normative data, might be considered above or below average. The important fact to be gleaned from Table 36 is the recognition that students do discriminate among teachers on the basis of the variables studied. On no less than eleven of the twelve factors, significant F-ratios were obtained. In support of these differences, a separate analysis indicated significant F-ratios for each of the thirty-nine scales that were a part of the factor analysis program. The ratings of each teacher on these scales are also shown in Table 36. In raw score units, Professor Myers received scores at least one and one-half units above the average on 36 of the 39 scales, and Professor Bluem received similar scores on 34 scales. Professor Foster was above the average on one scale, and at least one and one-half units below the average on 22 scales. Professor Rimerman was below the average on 23 scales, Professor Siepmann on 20 scales, and Professor Averson on 13 scales. Professor Rider was above the average on one scale.

In terms of relative strengths, and without regard for the degree of importance attached to various factors, Professor Myers (Teacher 1) was rated above average on Stimulation, Wit, Communication, Friendliness, and Directness. Professor Siepmann (Teacher 2) was rated above average on Profundity, Friendliness, and Composure and below average

TABLE 35

ANALYSIS OF VARIANCE OF RATINGS GIVEN BY A CLASS OF 82 STUDENTS
TO SEVEN TELEVISION TEACHER PRESENTATIONS,
BASED ON SEX OF RESPONDENTS
(Female = 237, Male = 281; m = 1, n = 517)

| Variables | Standard Scores | | F-Ratio | Favors |
|---|---|---|---|---|
| | Female | Male | | |
| FACTORS | | | | |
| 1. Profundity | -.1510 | .1274 | 6.119* | Male |
| 2. Assertiveness | .0459 | -.0388 | 0.540 | |
| 3. Stimulation | -.1157 | .0976 | 3.002# | Male |
| 4. Wit | .0050 | -.0042 | 0.007 | |
| 5. Intimacy | .0442 | -.0372 | 0.460 | |
| 6. Organization | .0104 | -.0088 | 0.039 | |
| 7. Communication | .1214 | -.1024 | 2.892# | Female |
| 8. Friendliness | .1205 | -.1017 | 3.479# | Female |
| 9. Composure | -.0495 | .0418 | 0.700 | |
| 10. Dynamism | -.1820 | .1535 | 7.811** | Male |
| 11. Directness | .0792 | -.0668 | 1.557 | |
| 12. Control | .0103 | -.0087 | 0.020 | |
| SCALES | | | | |
| Strong-Weak | -.3732 | .3157 | 3.714# | Male |
| Enthusiastic-Not Enthusiastic | -.4078 | .3440 | 3.696# | Male |
| Profound-Shallow | -.4868 | .4071 | 6.290* | Male |
| Confident-Nervous | -.3448 | .2908 | 4.035* | Male |
| Brilliant-Mediocre | -.4105 | .3462 | 4.046* | Male |
| Warm-Cool | .5999 | -.5059 | 8.564** | Female |
| Impressive-Unimpressive | -.4126 | .3465 | 3.557# | Male |
| Sociable-Inhibited | .2946 | -.2494 | 3.254# | Female |

#p < .10 *p < .05 **p < .01

# TABLE 36

## ANALYSIS OF VARIANCE OF RATINGS GIVEN BY A CLASS OF 82 STUDENTS TO SEVEN TELEVISION TEACHER PRESENTATIONS

| Variables | Scores of Teachers | | | | | | | F-Ratio |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| FACTORS[a] | | | | | | | | |
| 1. Profundity | - 20[b] | 30 | - 18 | - 28 | 03 | 66 | - 32 | 5.814** |
| 2. Assertiveness | 22 | - 22 | 31 | 21 | - 10 | 28 | - 25 | 2.769* |
| 3. Stimulation | 53 | - 13 | - 22 | - 11 | 12 | - 15 | - 09 | 2.743* |
| 4. Wit | 127 | -126 | 15 | 17 | - 03 | 46 | - 71 | 32.290** |
| 5. Intimacy | - 03 | 20 | - 25 | - 27 | 43 | 31 | - 38 | 3.851** |
| 6. Organization | 17 | - 58 | -154 | 58 | 27 | 33 | 78 | 38.287** |
| 7. Communication | 44 | - 15 | - 26 | - 32 | 06 | 26 | - 07 | 2.624* |
| 8. Friendliness | 53 | 46 | - 58 | 09 | 12 | - 11 | - 63 | 8.739** |
| 9. Composure | 24 | 56 | - 73 | - 62 | 07 | 54 | - 17 | 12.970** |
| 10. Dynamism | 01 | - 65 | 75 | - 30 | 18 | 43 | - 28 | 9.101** |
| 11. Directness | 52 | - 42 | 10 | 02 | - 40 | - 27 | 38 | 6.087** |
| 12. Control | - 30 | 10 | 01 | 10 | - 12 | 04 | 18 | 0.940 |
| SCALES[c] | | | | | | | | Grand Mean[d] |
| 1. Strong | 222[b] | -268 | -095 | - 89 | 083 | 326 | -150 | 13.23 |
| 2. Enthusiastic | 379 | -204 | 005 | -198 | 104 | 197 | -282 | 12.72 |
| 3. Definite | 119 | -156 | -016 | - 92 | 009 | 152 | -005 | 15.41 |
| 4. Profound | 111 | 000 | -127 | -156 | 015 | 238 | -089 | 12.85 |
| 5. Pleasant/List. | 418 | -128 | -347 | -162 | 096 | 326 | -228 | 13.16 |
| 6. Confident | 172 | 018 | -189 | -160 | 033 | 179 | -014 | 15.40 |
| 7. Exciting | 458 | -244 | -319 | -137 | 099 | 337 | -207 | 10.18 |
| 8. Personal | 291 | -015 | -405 | -158 | 225 | 302 | -254 | 10.94 |
| 9. Authoritative | 116 | -087 | -077 | -131 | 032 | 199 | -049 | 14.10 |
| 10. Effective | 403 | -279 | -416 | -050 | 113 | 332 | -110 | 12.88 |
| 11. Natural | 237 | -097 | -221 | -067 | 048 | 218 | -128 | 14.42 |
| 12. Clear | 328 | -347 | -448 | 045 | 095 | 297 | 036 | 13.64 |
| 13. Inspiring | 295 | -120 | -222 | -128 | 062 | 232 | -134 | 11.92 |
| 14. Easy to Take Notes | 201 | -198 | -820 | 109 | 095 | 225 | 362 | 11.44 |
| 15. Dynamic | 336 | -251 | -097 | -168 | 106 | 349 | -262 | 11.58 |
| 16. Intimate | 271 | -110 | -384 | -048 | 170 | 321 | -224 | 11.00 |
| 17. Vigorous | 440 | -308 | -056 | -198 | 110 | 333 | -311 | 11.60 |
| 18. Brilliant | 228 | -067 | -237 | -156 | 078 | 313 | -167 | 11.30 |
| 19. Relaxed | 280 | -034 | -387 | -079 | 043 | 250 | -104 | 14.35 |
| 20. Warm | 404 | -089 | -270 | -074 | 080 | 126 | -210 | 11.01 |

## TABLE 36--Continued

| Variables | Scores of Teachers | | | | | | | Grand Mean[d] |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| SCALES[c] | | | | | | | | |
| 21. Sincere | 238 | -018 | -279 | -052 | 060 | 186 | -157 | 14.48 |
| 22. Impressive | 351 | -121 | -269 | -146 | 073 | 337 | -243 | 12.27 |
| 23. Friendly | 290 | -041 | -210 | -072 | 096 | 130 | -214 | 14.71 |
| 24. Interesting | 503 | -298 | -432 | -088 | 161 | 4[illegible]1 | -255 | 12.07 |
| 25. Organized | 217 | -155 | 094 | -000 | -100 | 038 | 074 | 15.86 |
| 26. Gay | 685 | -399 | -111 | -078 | -002 | 205 | -314 | 9.46 |
| 27. Direct | 236 | -228 | -105 | -013 | -016 | 124 | -001 | 15.02 |
| 28. Poised | 276 | -043 | -224 | -205 | 006 | 218 | -058 | 14.62 |
| 29. Stimulating | 431 | -238 | -298 | -078 | 091 | 286 | -200 | 11.72 |
| 30. Communicative | 244 | -104 | -255 | -079 | 048 | 187 | -055 | 14.75 |
| 31. Colorful | 531 | -256 | -314 | -079 | 067 | 317 | -280 | 10.97 |
| 32. Graceful | 268 | -068 | -235 | -168 | 052 | 232 | -098 | 12.50 |
| 33. Demonstrative | 334 | -275 | -136 | -087 | 063 | 163 | -058 | 13.46 |
| 34. Aggressive | 196 | -139 | 011 | -168 | 000 | 275 | -165 | 12.93 |
| 35. Sociable | 370 | -163 | -138 | -130 | 081 | 268 | -290 | 13.32 |
| 36. Active | 425 | -287 | -027 | -134 | 030 | 284 | -285 | 12.55 |
| 37. Assertive | 288 | -172 | 066 | -173 | 006 | 252 | -203 | 12.75 |
| 38. Witty | 678 | -374 | -220 | -158 | 107 | 407 | -442 | 9.41 |
| 39. Controlled | -117 | 098 | -020 | 041 | -064 | -051 | 106 | 14.72 |

[a] All factor scores are reported as standard scores, based on a Grand Mean of 0.00.

[b] All figures should be multiplied by $10^{-2}$.

[c] All scale scores are reported as raw scores from a Grand Mean which is also reported as a raw score in the right-hand column.

[d] Each bipolar scale varies from 1 to 19, with 19 being considered the positive end denoted by the adjectives shown.

$^{*}p < .05$ $^{**}p < .01$

on Wit, Organization, Dynamism, and Directness. Professor Rimerman (Teacher 3) was rated above average on Assertiveness and Dynamism, and below average on Organization, Friendliness, and Composure. Professor Averson (Teacher 4) was rated above average on Organization, and below average on Communication and Composure. Professor Rider (Teacher 5) was rated above average on Intimacy, and below average on Directness. Professor Bluem (Teacher 6) was rated above average on Profundity, Wit, Intimacy, Organization, Composure, and Dynamism. Professor Foster (Teacher 7) was rated above average on Organization and Directness, and below average on Profundity, Wit, Intimacy, and Friendliness.

With respect to the students' reactions on individual bipolar scales to the teachers who lectured in the course, it was also possible to examine interactions between teachers and the sex of the student raters. Some interesting variations were noted. Professor Myers was rated higher by women than men on the scales of strong, enthusiastic, personal, gay, and controlled. In similar fashion, Professor Rider was rated higher by women than men on the scales of strong, natural, organized, active, and assertive. The converse occurred with Professors Siepmann and Foster. Professor Siepmann was rated higher by men than women on the scales of profound, effective, natural, clear, easy to take notes, dynamic, stimulating, and communicative. Professor Foster was rated higher by men than women on the scales of strong, pleasant to listen to, confident, personal, intimate, and warm. Relatively few differences in teacher ratings due to sex were noted with Professors Bluem and Averson. Women rated the former higher on the factors of confident and warm, and men rated him higher on control. Women judged Professor Averson to be more relaxed, while men judged him to be more gay. Wide variations due to sex resulted from Professor Rimerman's presentation. He was rated higher by women than men on the scales of pleasant to listen to, effective, natural, clear, easy to take notes, dynamic, and intimate; but rated higher by men than women on the scales of relaxed, poised, active, and assertive.

## Comparisons on the Basis of Personality Needs Characteristics

Thus far in the study of the relationships between student characteristics and their perceptions of television teachers, the focus has been on the sex of the students and certain other aspects (school, area of study) related to their professional orientation. These attributes have probably been rather limited reflections of the domain of student personality characteristics. Consequently, another set of measures to describe student patterns of personality was selected in order to compare, systematically, relationships between students and teachers. Since there are several approaches and instruments available to assess personality, it became a matter of judgment as to which to use. In this instance, measures of student personality needs characteristics were determined by means of the Activities Index (AI) developed by Dr. George Stern and his colleagues.[1] Personality theory suggests that an individual's needs are functional and represent the objectives which an individual tries to achieve for himself. Although not directly observable, characteristics of needs may be revealed by the interactions in which an individual engages. A satisfactory approximation for direct observation of behavioral patterns is to require an individual to indicate his preferences among a listing of possible activities. The Activities Index was predicated on this basis, and designed as a systematic representation of variables stemming from personality theory.

The AI consists of 300 items describing commonplace activities or feelings for which a respondent indicates his like or dislike. It is self-administering, following instructions on the cover of a reusable question booklet. Answers are recorded on a special sheet, using an electrographic pencil. The AI has been used successfully on a wide variety of subjects.[1] For the past ten years all freshmen students enrolled at Syracuse University have completed the Activities Index, and certain composite scores are provided to faculty advisers to assist in counseling. In addition to the advantage of accessibility of student records, another factor favoring the use of the AI was the computational method employed in determination of the personality factors. A principal components-equamax analysis identical to that used in the research to identify television teacher trait factors was employed for a refinement of the AI studies.[2]

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[1] George G. Stern, Scoring Instructions and College Norms, Activities Index--College Characteristics Index. (Syracuse University: Psychological Services Center, 1963); Cf. George G. Stern, M. I. Stein and B. S. Bloom. Methods in Personality Assessment (Glencoe, Ill.: Free Press, 1956); Cf. C. R. Pace and G. G. Stern, A Criterion Study of College Environments, Final Report, College Entrance Examination Board, January, 1958.

The 300 like-dislike items in the AI converge to thirty needs, which Stern described briefly as shown in the following table. These thirty needs then combine to form twelve clusters or factors. These factors, which were computed for study in the series of television teaching experiments, are described as follows:[3]

Factor 1. Self-Assertion. This factor reflects a need to achieve personal power and socio-political recognition. It is based on items which emphasize political action, directing or controlling other people, and the acceptance of roles involving considerable group attention. Score: [Ego Achievement + Dominance + Exhibitionism + Fantasied Achievement]

Factor 2. Audacity-Timidity. The second factor is more personally than socially oriented. The emphasis here is on aggressiveness in both physical activities and in interpersonal relationships. It is of interest that this personal aggressiveness should also be associated with a high level of interest in science. Score: [Risktaking (10-Harm Avoidance) + Fantasied Achievement + Aggression + Science]

Factor-2. Timidity-Audacity. This is the inverse of Factor 2. It suggests a concern with any risk of danger to the self, whether physical, psychological, or social. These people avoid sports, social activities, and even fantasies which might conceivably incur harm or blame. Score: 40-Factor 2 Score.

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[1] Copies of the AI booklet, answer sheet, and diagnostic summary forms are available from the Psychological Services Center, Syracuse University.

[2] D. R. Saunders, A Factor Analytic Study of the AI and the CCI (Privately published, 1963).

[3] Stern, op. cit.

## TABLE 37

## STERN'S NEED-PRESS SCALE DEFINITIONS

1. Abasement--Assurance: self-deprecation vs. self-confidence
2. Achievement: striving for success through personal effort
3. Adaptability--Defensiveness: acceptance of criticism vs. resistance to suggestion
4. Affiliation--Rejection: friendliness vs. unfriendliness
5. Aggression--Blame Avoidance: hostility vs. its inhibition
6. Change--Sameness: flexibility vs. routine
7. Conjunctivity--Disjunctivity: planfulness vs. disorganization
8. Counteraction--Inferiority Avoidance: restriving after failure vs. withdrawal
9. Deference--Restiveness: respect vs. rebelliousness
10. Dominance--Submission: ascendancy vs. meekness
11. Ego Achievement: striving for power through social action
12. Emotionality--Placidity: expressiveness vs. restraint
13. Energy--Passivity: effort vs. inertia
14. Exhibitionism--Inferiority Avoidance: attention-seeking vs. withdrawal
15. Fantasied Achievement: daydreams of unusual public recognition
16. Harm Avoidance--Risktaking: fearfulness vs. thrillseeking
17. Humanism: interests in the Humanities and the Social Sciences
18. Impulsiveness--Deliberation: impetuousness vs. reflection
19. Narcissism: vanity
20. Nurturance--Rejection: helping others vs. indifference
21. Objectivity--Projectivity: detachment vs. superstition
22. Order--Disorder: compulsive organization of details vs. carelessness
23. Play--Work: pleasure-seeking vs. purposefulness
24. Practicalness--Impracticalness: interest in practical activities vs. indifference
25. Reflectiveness: introspective contemplation
26. Science: interests in the Natural Sciences
27. Sensuality: interest in sensory and esthetic experiences
28. Sexuality--Prudishness: heterosexual interests vs. their inhibition
29. Succorance--Autonomy: dependency vs. self-reliance
30. Understanding: intellectuality, abstract problem solving

Factor 3. Intellectual Interests. The factors with the highest loadings in this dimension are based on items involving various forms of intellectual activities. These include interests in the arts as well as the sciences, both abstract and empirical. Score: [Reflectiveness + Humanitism + Understanding + Science]

Factor 4. Motivation. This factor, like 1 and 2, represents another form in which need achievement may be expressed. Here, however, are the more conventional forms of striving most recognizable among students, involving elements of competitiveness and perseverance as well as of intellectual aspiration. Score: [Achievement + Counteraction + Understanding + Energy]

Factor 5. Applied Interests. A high score on this factor suggests an interest in achieving success in concrete, tangible, socially acceptable activities. The items involve orderly and conventional applications in business and science. Score: [Practicalness + Science + Order]

Factor 6. Orderliness. People with high scores on this factor have indicated a marked interest in activities stressing personal organization and deliberativeness. Although some of the items are concerned with long range planning and relatively high level time perspective, the major emphasis here is on the maintenance of ritual and routine and the avoidance of impulsive behavior. Score: [Conjunctivity + Sameness (10-Change) + Order + Deliberation (10-Impulsiveness)]

Factor 7. Submissiveness. The preceding factor suggests a strong defensive system, based on rigid internal controls, for guarding against the expression of impulses. The Submissiveness factor also implies a high level of control, but one which is based on social conformity and other-directedness. The items emphasize humility, deference, getting along with others, keeping in one's place, etc. It is of interest that the Nurturance scale items should appear in this context, suggesting that the submissive individual's interest in supportive activities is based to a considerable extent on his own unexpressed need for such help. Score: [Adaptability + Abasement + Nurturance + Deference]

Factor 8. Closeness. This factor is closely related to Factor 7, with which it shares both the Nurturance and Deference scales. However, the abasive and self-denying qualities implicit in Factor 7 are absent here. In their place is an acceptance of items which recognize one's needs for warmth and emotional supportiveness. Score: [Supplication + Sexuality + Nurturance + Deference]

Factor 9. Sensuousness. The items associated with this factor are concerned with activities of a sensual character. The items suggest a measure of self-indulgence along with a delight in the gratifications which may be obtained through the senses. Score: [Sensuality + Narcissism + Sexuality]

Factor 10. Friendliness. Persons with high scores on this factor are indicating an interest in playful, friendly relationships with other people. These interests involve simple and uncomplicated forms of amusement enjoyed in a group setting. Score: [Affiliation + Play]

Factor 11. Expressiveness-Constraint. This factor stresses emotional ability and freedom from self-imposed controls. Individuals with high scores on this factor are outgoing, spontaneous, impulsive, and uninhibited. Score: [Emotionality + Impulsiveness + Exhibitionism + Sexuality]

Factor -11. Constraint-Expressiveness. This is the inverse of Factor 11. Moderately high scores suggest guardedness and emotional constriction. Extreme scores are likely to be associated with high levels of inhibition, defensiveness and rigidity. Score: 40-Factor 11 Score.

Factor 12. Egoism-Diffidence. This factor reflects an extreme preoccupation with self. The items are concerned with appearance and comfort, as well as with fantasies in which the self obtains unusually high levels of gratification. The responses to other items in this group suggest that reality itself is interpreted in egocentric terms, but this may be not so much a matter of autistic distortion as of narcissistic egoism. Score: [Narcissism + Fantasied Achievement + Projectivity (10-Objectivity)]

Factor -12. Diffidence-Egoism. Reversed scores on Factor 12 reflect a lack of preoccupation with the self as a source of gratification. This implies good contact and reality testing, although very high scores may perhaps be associated with a tenuous, underdeveloped ego structure and a vague or obscurely-defined self-concept.
Score: 30-Factor 12 Score.

In his 1936 study, Saunders then refactored the matrix of intercorrelations between the personality factors. This principal components-equamax analysis yielded three second-order personality factors: 1) Intellectual Orientation, 2) Dependency Needs, and 3) Emotional Expression. There may also be a fourth second-order factor, tentatively labeled Educability, of less magnitude but no less significant than the others, which combines elements of intellectuality and submissiveness and may be associated with academic achievement. Stern describes these second-order factors as follows:[1]

The Intellectual Orientation dimension consists of five factors. Two of these involve intellectual interests and achievement motivation. A third reflects an interest in applied skills. The last two are concerned with the maintenance of intellectual and social aggressiveness. The factors are Self-Assertion, Audacity, Intellectual Interests, Motivation, and Applied Interests.

The Dependency Needs dimension consists of seven factors. A high score suggests a generally high level of dependent, submissive, socially-controlled behavior. A low score represents the inverse of this: autonomy, ascendance, and non-conformity. The factors are Applied Interests, Constraint, Diffidence, Orderliness, Submissiveness, Timidity, and Closeness.

The Emotional Expression dimension shares the closeness factor with the preceding dimension, but the remaining five factors stress higher levels of social participation and emotional spontaneity. The last factor in this group, Self-Assertion, is shared with the intellectual dimension. The factors are Closeness, Sensuousness, Friendliness, Expressiveness, Egoism, and Self-Assertion.

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[1] Stern, op. cit.

The *Educability* dimension combines elements of intellectuality and submissiveness. However, it excludes the more self-assertive aspects of intellectuality and the more inhibited aspects of dependency needs. The five factors which, summed, are thought to represent this dimension are Intellectual Interests, Motivation, Applied Interests, Orderliness, and Submissiveness.

As the Activities Index was being refined simultaneously with the experiments described herein, it was not possible to perform identical experiments with each television teacher. The following tables, however, do summarize the comparisons which were able to be made in each experiment. the factor analysis program devised by Saunders contained one routine which was most useful to assist in the analysis. In each experiment the personality needs or factor scores could be fed into the computer along with the teacher trait scores to yield an initial intercorrelation matrix of all scores. The submatrix of teacher trait rating scales could then be factored and the loadings of the student personality scores estimated by Dwyer extension, all in one operation. At the point where the teacher trait factors had been rotated according to equamax and the factor loadings on various scales determined--but prior to a print-out of data signaling the completion of the program--the personality data could be reinserted into the program and the relation of each personality factor to each teacher trait factor computed and printed.

Table 38 shows the relationships between the sixteen Ideal Teacher Trait factor scores identified by the 618 students in the first experiment and the twelve AI personality factor scores computed for the students. The relationships consist of product-moment correlations between the factors. Significant relationships at the .05 level of confidence are underlined.

On the basis of these data, each of the fourteen positive Teacher Trait factors is related to at least one AI factor. Conversely, each of the twelve AI factors is related to at least one Teacher Trait factor.

Persons scoring high on the AI factors of Motivation and Intellectual Interests will attach greater than average importance to Teacher Trait factor 2 (*inspiring*, *interesting*,

## TABLE 38

## RELATIONSHIPS BETWEEN 12 STUDENT PERSONALITY FACTOR SCORES AND 16 IDEAL TEACHER TRAIT FACTOR SCORES[a]

| AI Factor | Teacher Trait |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1 fri | 2 sti | 3 dyn | 4 int | 5 sty | 6 comp | 7 ctl | 8 act | (9) tim | 10 pro | 11 dir | 12 wit | (13) res | 14 org | 15 comm | 16 ass |
| 1. Motivation | -066 | 102* | 081 | 028 | -011 | 040 | -041 | 093 | -049 | 062 | 067 | 078 | -015 | -112 | 043 | -004 |
| 2. Intellectual Interests | -018 | 106 | -002 | 006 | -022 | -038 | -001 | 071 | -036 | 054 | 044 | 020 | 019 | -102 | 019 | 016 |
| 3. Applied Interests | 030 | 054 | 071 | -020 | -055 | -040 | 028 | 050 | -025 | 091 | -029 | -039 | -029 | -028 | 052 | 012 |
| 4. Orderliness | 044 | -045 | -015 | 019 | -079 | -010 | -054 | -032 | 006 | 017 | -032 | -123 | 025 | 069 | 057 | 061 |
| 5. Self Assertion | -053 | 054 | 064 | 060 | 063 | 115 | 031 | 043 | -021 | -045 | -049 | 062 | 006 | 097 | -056 | 055 |
| 6. Egoism-Diffidence | -083 | 017 | 053 | 031 | 020 | 084 | 032 | 045 | 031 | -068 | -055 | 044 | -055 | -024 | -047 | 006 |
| 7. Expressiveness-Constraint | -004 | 054 | -036 | -010 | 091 | 026 | 028 | 083 | -042 | -043 | -003 | 009 | 043 | -006 | -023 | 033 |
| 8. Friendliness | 036 | -021 | 048 | 048 | 013 | -064 | -096 | 024 | -042 | 083 | 032 | 136 | -048 | 029 | 013 | 010 |
| 9. Sensuousness | 056 | 076 | -033 | -093 | 010 | -015 | 053 | 119 | 028 | 042 | 002 | -123 | -003 | -038 | 028 | -033 |
| 10. Closeness | 042 | 068 | -035 | -029 | 054 | 021 | 017 | 098 | -035 | 091 | 051 | -050 | -019 | -023 | -004 | 002 |
| 11. Submissiveness | 004 | -025 | 050 | 002 | 040 | 023 | -013 | -007 | -033 | 070 | -029 | 065 | -011 | 084 | -053 | 041 |
| 12. Audacity-Timidity | -108 | 049 | 040 | -006 | -007 | -029 | -060 | 087 | -061 | 024 | 004 | 100 | -023 | -030 | -010 | -005 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

stimulating); and attach less than average importance to Teacher Trait Factor 14 (easy to take notes).

While more highly motivated and intellectually oriented persons are inclined to be less interested in establishing ease of note taking as an important criterion of teacher effectiveness, two other personality types sometimes considered as opposites favor this criterion. Teacher Trait factor 14 is significantly related to persons scoring high on the AI factor of Self-Assertion and to those scoring high on the AI factor of Submissiveness.

The highly motivated person also considers Teacher Trait Factor 3 (dynamic, exciting) and Teacher Trait Factor 8 (active, vigorous) as of greater than average importance.

Teacher Trait Factor 8 is also significantly related to the AI factors of Expressiveness, Sensuousness, Closeness, and Audacity. This factor thus interacts positively with five AI factors. In reverse terms, persons possessing in considerable measure any of five personality traits are likely to react favorably to this teacher characteristic.

Significant correlations exist between the Audacity student personality factor and the Teacher Trait factors of Wit; but a negative correlation exists between this personality factor and Teacher Trait Factor 1 (sincere, friendly).

Persons who are Egoistic and those who are self-Assertive attach a greater than average importance to Teacher Trait Factor 6 (poised, relaxed).

Persons react in varying ways to Teacher Trait Factor 12 (witty). In addition to those persons scoring high on the AI factor of Audacity, those scoring high on Friendliness likewise consider this an important teacher characteristic. Conversely, persons scoring high on the AI factors of Orderliness and Sensuousness do not consider "witty" to be an important teacher characteristic.

Persons scoring high on Applied Interests rate Teacher Trait Factor 10 (profound, brilliant) higher than average. So also do persons scoring high on the AI factors of Friendliness and Closeness.

The Expressive person regards Teacher Trait Factor 5 (impressive, graceful) as more important than average.

It is perhaps interesting to note that three Ideal Teacher Trait factors--15 (clear, communicative), 11 (direct, definite), and 16 (assertive, aggressive)--appear not to be related to any of the AI factors.

In a similar fashion the student loadings on teacher trait factors identified in the Professor Burtt teaching experiment were correlated with the 12 AI personality factor scores for each student, and these relationships are shown in Table 39.

The strongly motivated student tended to rate the Teacher Trait factors of Activity (2), Naturalness (4), and Assertiveness (10) higher than average; and to rate the factors of Wit (13) and Organization (15) lower than average. In the latter instance, one may recall that in the earlier theoretical context highly motivated persons were less interested in establishing ease of note taking as an important criterion of teacher effectiveness than less highly motivated persons; in this practical situation, a similar relationship occurred with highly motivated students rating Professor Burtt lower on ease of note taking than less highly motivated students.

Persons ranking high on the personality factor concerned with Intellectual Interests tended to correlate positively with the Teacher Trait factors of Activity (2), Naturalness (4), and Composure (12), and to correlate negatively with the Teacher Trait factors of Confidence (3), Friendliness (5), and Wit (13).

The student personality factor of Applied Interests correlated significantly with only two teacher traits, Profundity (9) and Directness (14).

Persons scoring high on the trait of Orderliness rated the Teacher Trait factors of Activity (2), Profundity (9), Directness (14), and Organization (15) higher than average; while they rated Forcefulness (7) lower than average.

Self Assertive persons literally asserted themselves in rating the teacher; significant relationships occurred with six factors. These persons rated the teacher higher

TABLE 39

RELATIONSHIPS BETWEEN STUDENT AI PERSONALITY FACTOR SCORES AND TEACHER TRAIT FACTOR SCORES, PROFESSOR BEN BURTT EXPERIMENT[a]

| AI Factor | Teacher Trait | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 sti | 2 dyn | 3 con | 4 nat | 5 fri | 6 int | 7 for | 8 ctl | 9 pro | 10 ass | 11 comm | 12 comp | 13 wit | 14 dir | 15 org |
| 1. Motivation | 063 | 186* | -068 | 080 | 028 | 049 | -044 | 052 | -022 | 191 | 027 | 054 | -120 | 004 | -079 |
| 2. Intellectual Interests | 038 | 142 | -122 | 092 | -110 | 017 | -026 | 009 | -032 | 036 | 025 | 121 | -083 | -005 | 002 |
| 3. Applied Interests | 066 | 068 | -069 | 001 | 010 | 066 | -049 | 047 | 116 | 045 | -011 | 041 | -036 | 141 | 055 |
| 4. Orderliness | 022 | 088 | 016 | 002 | 020 | 063 | -116 | -019 | 165 | 021 | -012 | 035 | -050 | 252 | 086 |
| 5. Self-Assertion | 106 | 005 | 027 | 018 | -030 | -062 | 147 | 074 | -120 | 074 | -016 | 082 | 033 | -082 | -021 |
| 6. Egoism-Diffidence | 104 | -045 | -013 | 024 | -020 | -109 | 141 | 067 | 008 | -058 | -027 | 070 | 013 | -059 | -013 |
| 7. Expressiveness Constraint | 103 | 037 | 078 | 037 | -000 | -099 | 112 | -022 | 021 | 024 | 029 | 068 | 106 | -186 | 050 |
| 8. Friendliness | 050 | -024 | 115 | -042 | 084 | -070 | 024 | -027 | 062 | -047 | 055 | 014 | 157 | -068 | 084 |
| 9. Sensuousness | 134 | 044 | 010 | 013 | 050 | -051 | 061 | -039 | 053 | -053 | 033 | 066 | 041 | -091 | 032 |
| 10. Closeness | 146 | 113 | 029 | 050 | 096 | 055 | -042 | -062 | 112 | -006 | 005 | 109 | 017 | 102 | 084 |
| 11. Submissiveness | 058 | 084 | 009 | 061 | 082 | 107 | -074 | -005 | 105 | 045 | 010 | 000 | -031 | 148 | 050 |
| 12. Audacity-Timidity | 019 | -032 | -048 | 028 | -044 | -092 | 071 | 075 | -128 | 042 | -032 | 041 | -012 | -141 | -072 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

than average on Stimulation (1), Forcefulness (7), Assertiveness (10), and Composure (12); but they rated the teacher lower than average on Profundity (9) and Directness (14).

The Self Centered persons exhibited fewer significant deviations. They rated high the teacher traits of Stimulation (1) and Forcefulness (7), and rated low the trait of Intimacy (6).

Persons rated high on the personality characteristic of Spontaneity also rated the teacher high on the traits of Stimulation (1), Confidence (3), Forcefulness (7), and Wit (13); but rated the teacher low on the traits of Intimacy (6) and Directness (14).

Persons characterized as Friendly rated the teacher higher than average on the traits of Confidence (3), Friendliness (5), Wit (13), and Organization (15).

Only two significant relationships occurred with persons characterized as possessing a higher than average degree of Sensuousness. The teacher trait of Stimulation (1) was positively correlated with the student personality characteristic, while the teacher trait of Directness (14) was negatively correlated.

Students with above average scores on the personality characteristics of Closeness and Submissiveness showed significant positive ratings on four Teacher Trait factors: Activity (2), Friendliness (5), Profundity (9), and Directness (14). Additionally, students rated high on Closeness also rated the teacher high on Stimulation (1), Composure (12), and Organized (15); students rated high on Submissiveness also rated the teacher high on Intimacy (6).

While data were not available in a form to permit direct correlation analysis between the four second-order student personality dimensions and the teacher trait factors, certain combinations may be noted by inspection. Of the seven factors contributing to Dependency Needs, six were significantly related to the Teacher Trait factor of Definiteness, and five significantly related to Profundity. Five factors contributing to Emotional Expression were significantly related to the Teacher Trait factor of Stimulation, and three significantly related to Forcefulness. Four of the five factors contributing to Educability were significantly related to the Teacher Trait factor of

Activity and three were significantly related to the factors of Profundity and Definiteness.

Correlation coefficients between the 16 Television Teacher Trait factor scores obtained from the Professor Frank Funk experiment and the 12 student personality factor scores are shown in Table 40.

The strongly motivated student tended to rate the Teacher Trait factors of Intimacy (5) and Confidence (16) higher than average; but to rate the factor of Naturalness (4) lower than average. The latter relationship is the reverse of that obtained in the Ben Burtt experiment.

Students rated high on Intellectual Interests scored the factor of Stimulation (2) higher than average; but scored the factors of Naturalness (4) and Profundity (8) lower than average.

The student personality factor of Applied Interests correlated significantly only with the teacher trait of Stimulation (2).

Students scoring high on the trait of Orderliness rated the Teacher Trait factors of Stimulation (2), Wit (11), and Organization (13) higher than average; but rated Assertiveness (15) lower than average.

Persons rated high on Timidity also rated high the Teacher Trait factors of Activity (7), Organization (13), and Clarity (14).

Students scoring high on Self-Assertion rated Professor Funk above average on the factor of Definiteness (10) but below average on Impressiveness (3).

Students rated high on the personality factor of Egoism rated the factor of Wit (11) higher than average.

Students rated high on the factor of Expressiveness rated the factors of Forcefulness (12) and Confidence (16) higher than average.

## TABLE 40

## RELATIONSHIPS BETWEEN STUDENT AI PERSONALITY FACTOR SCORES AND TEACHER TRAIT SCORES, PROFESSOR FRANK FUNK EXPERIMENT[a]

| Personality Factor | Teacher Trait Factor | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 comp | 2 sti | 3 imp | 4 nat | 5 int | 6 dyn | 7 act | 8 pro | 9 sty | 10 comm | 11 wit | 12 for | 13 org | 14 clr | 15 ass | 16 ctl |
| Motivation | -014 | 102 | -041 | -123* | 153 | 037 | 094 | -052 | 092 | -051 | 010 | 005 | -079 | -029 | -061 | 161 |
| Intellectual Interests | 033 | 114 | -045 | -116 | 102 | -043 | 078 | -150 | 043 | 010 | -096 | -020 | -009 | -088 | -024 | 099 |
| Applied Interests | -027 | 226 | 020 | -002 | 021 | 031 | 031 | 025 | -050 | 037 | 019 | -054 | -007 | -052 | -091 | 061 |
| Orderliness | -031 | 123 | 084 | 054 | 032 | 049 | 071 | 076 | -005 | 037 | 149 | -031 | 129 | -014 | -147 | -010 |
| Timidity-Audacity | -009 | -093 | 057 | 056 | -010 | 086 | 139 | 005 | -100 | -060 | 076 | 026 | 185 | 170 | -042 | 037 |
| Self-Assertion | -049 | -005 | -130 | -052 | 053 | 035 | 021 | 020 | 072 | 113 | 074 | 069 | -089 | -073 | -023 | 017 |
| Egoism-Diffidence | 083 | 008 | -047 | -063 | 013 | 004 | -044 | -015 | 106 | 096 | 121 | -020 | 015 | -101 | 031 | 005 |
| Expressiveness Constraint | 062 | 020 | -106 | -005 | 031 | -013 | 004 | -048 | -005 | 021 | 046 | 135 | 104 | 019 | 029 | 131 |
| Friendliness | 039 | -005 | 098 | 099 | 080 | 033 | -11 | -130 | -029 | 122 | 086 | 137 | -067 | 043 | 063 | 025 |
| Sensuousness | 045 | 041 | -051 | -002 | -013 | -008 | 002 | -106 | -045 | 034 | 137 | 103 | 114 | -019 | 105 | 037 |
| Closeness | 093 | 267 | 072 | 078 | 057 | 088 | 085 | -010 | -035 | 013 | 218 | 117 | 146 | 034 | -061 | 206 |
| Submissiveness | 067 | 267 | 050 | 107 | 067 | 001 | 073 | 047 | -025 | -051 | 225 | 068 | 136 | 044 | -190 | 204 |

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[a] All Figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

Persons characterized as Friendly rated the teacher higher than average on the traits of Profundity (8), Definiteness (10), and Forcefulness (12); but lower than average on Activity (7).

Students possessing a higher than average degree of Sensuousness rated Professor Funk higher than average on Wit (11) and Organization (13).

Students with above average scores on the personality characteristics of Closeness and Submissiveness showed significant positive relationships on four Teacher Trait factors: Stimulation (2), Wit (11), Organization (13), and Control (16). Additionally, students rated high on Closeness also rated the teacher high on Forcefulness (12); but students rated high on Submissiveness rated the teacher low on Assertiveness (15).

Four of the five personality factors contributing to an Educability dimension are significantly related to the Teacher Trait factor of Stimulation (2). The Dependency Needs dimension appears to be related to the teacher traits of Wit (11), Organization (13), and possibly Stimulation (2); and negatively related to Assertiveness (15). The Emotional Expression dimension appears to be related to the teacher traits of Wit (11), Forcefulness (12), and possibly Definiteness (10). The Intellectual Orientation dimension may be negatively related to the teacher trait of Naturalness (4).

While many of these relationships appear to be psychologically valid, the point should be made that, of the 35 significant relationships observed in the Frank Funk experiment, only six were likewise observed in the Ben Burtt experiment. Three relationships were reversed.

Correlation coefficients between the 12 Television Teacher Trait factor scores obtained from the Professor William Sheldon experiment and the 12 student personality factor scores are shown in Table 41.

Students scoring high on the personality factor of Egoism rated the teacher trait factors of Stimulation (1) and Assertiveness (10) higher than average. Students scoring high on Audacity also rated the teacher factor of Stimulation (1) higher than average, but rated Control (12) lower than average.

## TABLE 41

## RELATIONSHIPS BETWEEN STUDENT AI PERSONALITY FACTOR SCORES AND TEACHER TRAIT FACTOR SCORES, PROFESSOR WILLIAM SHELDON EXPERIMENT

| Factor | Teacher Trait Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 sti | 2 comp | 3 comm | 4 dyn | 5 wit | 6 sty | 7 pro | 8 org | 9 fri | 10 ass | 11 int | 12 ctl |
| Personality Factor | | | | | | | | | | | | |
| Motivation | 043[a] | 050 | 006 | -067 | 024 | -111 | -103 | 017 | 009 | 085 | 034 | 012 |
| Intellectual Interests | 005 | -065 | 048 | -004 | 062 | 121 | -035 | -043 | -110 | 039 | -082 | -103 |
| Applied Interests | 095 | 008 | -026 | 016 | 035 | -026 | -071 | -017 | 006 | 065 | 022 | -016 |
| Orderliness | 080 | 064 | 113 | -029 | 068 | 024 | 047 | -232[b] | 047 | -010 | -138 | 154 |
| Audacity-Timidity | 140 | -063 | -009 | 028 | -038 | 052 | 022 | -026 | 005 | 024 | -068 | -146 |
| Self-Assertion | 092 | -039 | 001 | 079 | -010 | 027 | 101 | -074 | 054 | 013 | -083 | 003 |
| Egoism-Diffidence | 134 | -016 | -036 | -047 | 034 | -077 | -019 | -020 | 028 | 154 | 106 | 005 |
| Expressiveness-Constraint | 090 | -051 | -072 | -055 | 009 | -045 | -147 | 150 | 075 | 143 | 119 | -020 |
| Friendliness | 044 | -007 | 031 | -157 | 003 | -073 | -218 | 125 | 059 | 154 | 105 | -031 |
| Sensuousness | -049 | -026 | -033 | 007 | -044 | -064 | -062 | 044 | 208 | -078 | 054 | 026 |
| Closeness | 040 | 030 | 051 | -101 | 028 | -107 | -277 | 190 | -013 | 093 | 150 | 020 |
| Submissiveness | 096 | -057 | 023 | -135 | -009 | 119 | -127 | 060 | -060 | 043 | -018 | -064 |

[a] All figures should be multiplied by $10^{-3}$.

[b] Figures underlined are significant at the .05 level of confidence.

Students rated high on the personality factor of Submissiveness rated the factors of Dynamism (4) and Profundity (7) lower than average. In similar fashion, students rated high on the factor of Orderliness rated the factors of Organization (8) and Intimacy (11) lower than average.

Students rated high on the personality factors of Expressiveness and Friendliness rated the factors of Organization (8) and Assertiveness (10) higher than average, but rated Profundity (7) lower than average. Those high on Friendliness also rated Dynamism (4) lower than average. Students rated high on the personality factor of Closeness rated Organization (8) and Intimacy (11) higher than average and Profundity (7) lower than average. Those high on Sensuousness rated the teacher factor of Friendliness (9) higher than average.

Three factors contributing to the personality dimension of Emotional Expression were significantly related to the Television Teacher Trait factor of Assertiveness (10), and three were related to the factor of Organization (8). Three factors contributing to the emotional dimension were negatively related to the factor of Profundity (7).

Students rated high on the personality factors of Motivation, Intellectual Interests, Applied Interests, and Self-Assertion showed no significant relationships with any television teacher trait. These constituted four of the five factors contributing to the Intellectual Orientation dimension.

Correlation coefficients between the 13 Television Teacher Trait factor scores obtained from students exposed to Professor Lawrence Myers and the student personality factor and dimension scores are shown in Table 42.

Students who rated Professor Myers as high on Assertiveness (2) were themselves rated high on the personality factors of Self-Assertion, Audacity, Expressiveness, and Egoism, three of which are represented in the second-order dimension of Emotional Expression. Similarly, students who rated Professor Myers as high on Friendliness (10) were rated high on the factors of

## TABLE 42

## RELATIONSHIPS BETWEEN 12 STUDENT AI PERSONALITY FACTOR SCORES, 4 STUDENT AI PERSONALITY DIMENSION SCORES, AND 13 TELEVISION TEACHER TRAIT FACTORS, PROFESSOR LAWRENCE MYERS EXPERIMENT (N = 352)

| Factor | Television Teacher Trait Factor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 sti | 2 ass | 3 wit | 4 pro | 5 comm | 6 int | 7 org | 8 comp | 9 dyn | 10 fri | 11 dir | 12 conf | 13 ctl |
| **Personality Factor** | | | | | | | | | | | | | |
| Self-Assertion | -018[a] | 138[b] | -127 | -021 | 027 | -023 | -003 | 044 | 053 | -001 | -092 | -034 | -049 |
| Audacity-Timidity | -027 | 109 | -095 | -049 | -025 | -104 | -019 | -006 | 042 | -061 | -009 | -072 | -121 |
| Intellectual Interests | 004 | 007 | -083 | -080 | -009 | 005 | 066 | 002 | 030 | -054 | 062 | -037 | -009 |
| Motivation | -066 | 059 | -065 | -030 | -004 | 077 | 051 | -057 | 045 | -094 | 029 | 018 | 028 |
| Applied Interests | 029 | 005 | -023 | -012 | 005 | -100 | 013 | -054 | -010 | -085 | 022 | -011 | 024 |
| Orderliness | 053 | -027 | -012 | 086 | 012 | -036 | 068 | -041 | -043 | -055 | -014 | 007 | 079 |
| Submissiveness | -066 | 023 | -005 | 018 | 057 | -005 | 034 | 012 | -035 | 027 | 013 | 072 | 117 |
| Closeness | 022 | -011 | -051 | 012 | 028 | -010 | -010 | 063 | -042 | 132 | 072 | 056 | 060 |
| Sensuousness | 007 | 045 | -117 | -038 | -035 | -053 | 011 | 084 | -018 | 133 | 015 | -090 | -074 |
| Friendliness | -045 | 041 | -013 | -019 | -005 | -023 | -025 | 058 | -030 | 070 | 006 | 063 | -003 |
| Expressiveness-Constraint | -049 | 116 | -035 | -037 | -003 | 003 | -050 | 056 | -022 | 136 | 032 | -027 | 023 |
| Egoism-Diffidence | 029 | 106 | -144 | 076 | -001 | -085 | -023 | 070 | -031 | 110 | -030 | -129 | -101 |
| **Personality Dimensions** | | | | | | | | | | | | | |
| Intellectual Orientation | -046 | 089 | -123 | -058 | 002 | -040 | 028 | -025 | 057 | -076 | -023 | 007 | -048 |
| Dependency Needs | 032 | -092 | 042 | 032 | 032 | -003 | 051 | -034 | -040 | -049 | 030 | 096 | 117 |
| Emotional Expression | -010 | 102 | -109 | -018 | -001 | -042 | -018 | 081 | -017 | 118 | -001 | -046 | -040 |
| Educability | -010 | 018 | -054 | -008 | 015 | -014 | 064 | -037 | -001 | -072 | 032 | 010 | 060 |

[a] All figures should be multiplied by $10^{-3}$.

[b] Figures underlined are significant at the .05 level of confidence.

Closeness, Sensuousness, Expressiveness, and Egoism, all of which contributes to Emotional Expression.

It may be recalled (Table 36) that Professor Myers was rated very high on the "witty" scale. The Television Teacher Trait factor of Wit (3) was negatively related to the student personality factors of Self-Assertion, Sensuousness, and Egoism, as well as the dimensions of Emotional Expression and Intellectual Interests.

Students scoring high on the personality factors of Timidity and Submissiveness, and the dimension of Dependency Needs, rated Professor Myers high on the factor of Control (13).

Thus, a great many significant relationships have been noted between student personality characteristics and their ratings of teachers. Within the matrices of correlations between these variables, cells containing significant r's varied from 9.6 percent in the Lawrence Myers experiment to 13.9 percent in the William Sheldon experiment, to 15.5 percent in the Ideal Teacher experiment, to 18.2 percent in the Frank Funk experiment, to 30.6 percent in the Ben Burtt experiment. One must remember, however, that the observed relationships were significantly different from zero. The largest correlation coefficient found was 0.267; so the predictive capability of single traits is low. Further, these experiments did not produce consistent patterns. In terms of student personality, the dimension of Emotional Expression was related to the Teacher Trait factor of Assertiveness in the Sheldon and Myers experiments and to the Teacher Trait factor of Forcefulness in the Burtt and Funk experiments. No other relationship held throughout more than two of the five experiments.

One may conclude that personality characteristics of students are, indeed, related in various ways to their ratings of teachers; but that these relationships are subject to many interactions that make consistent predictions difficult. These data suggest a caution for university administrators. It is fashionable on university campuses for students to rate teachers and publish the results in booklets for the benefit of succeeding classes. At least one State Legislature has authorized cash merit awards to outstanding college teachers and has stipulated that students will be involved in the determination of winners.[1] The chief administrator at a major New York City institution promised students that their "grading" of the faculty would play a role in promotion and tenure decisions.[2] If such ratings are to have validity, the evidence suggests that one should take into consideration the personality characteristics of the students doing the rating.

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[1] Christian Science Monitor (October 15, 1966), p. 17. The Portland State College is asking students to rate their teachers on: 1) Stimulates thinking, 2) considerate attitude, 3) organizes content well, 4) explains clearly, 5) inspires confidence, and 6) considers differing opinions.

[2] "Campus Crisis," This Week Magazine (February 12, 1967), p. 7.

# CHAPTER V

# RELATIONSHIPS BETWEEN STUDENT AFFECTIVE BEHAVIOR, PERSONALITY CHARACTERISTICS, AND THEIR ASSESSMENT OF TELEVISION TEACHER CHARACTERISTICS

## Affective Behavior in the Classroom

Since Aristotelian days, when the Greek philosopher delineated rules by which a speaker might influence the mood of his audience in order better to elicit desired subsequent behaviors, communicators have been concerned with relationships between affections and other behavioral forms. Thorndike focused on this problem in 1932 with his description of the "Law of Effect," a general affirmation that a connection between a situation and a response will be strengthened if accompanied by a satisfying state of affairs and vice versa.[1] In more specific terms, Bryan theorized that pupils learn more effectively when they react favorably to the elements in a teaching situation.[2] Since reactions, such as opinions, interests, or feelings of pupils to teaching situations, were so important in attaining desirable educational objectives, he believed that some systematic effort should be made to measure them. The development of approving attitudes as well as the imparting of learning and skills was considered essential for self-directed education.

Such an approach has been generally adopted as a major goal of school curricula and has been considered by many educators. Bruner, for example, suggested that a goal of teaching must be to increase the inherent interest in what is being taught, that is, "developing in the child an interest in what he is learning and with it an appropriate set of attitudes and values about intellectual activities in general."[1] Even in informal educational situations, such as exist within a family environment, there is increasing acceptance of the notion that the job of parent education is not to supply children with information but to change feelings and attitudes and, in turn, behavior.[2]

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[1] E. L. Thorndike, The Fundamentals of Learning (New York: Bureau of Publications, Teachers College, Columbia University, 1932), p. 176.

[2] Roy C. Bryan, Pupil Rating of Secondary School Teachers (New York: Teachers College, Columbia University, 1937), p. 1.

The relationships between cognitive and affective behaviors have yet to be precisely defined. In the definitive work on affective behavior, Krathwohl and his associates agree that the evidence suggests that "affective behaviors develop when appropriate learning experiences are provided for students much the same as cognitive behaviors develop from appropriate learning experiences."[3] However, he notes that no clear causal relationships have been scientifically formulated. Heuristically, one may observe instances in which teachers utilize the achievement of cognitive goals to attain affective goals.[4] Conversely, the affect theory of motivation suggests that one seeks experiences that have positive affective or emotional tones, and the extent to which affect is linked to an object will be related to the desire of an individual to seek the object in order to experience the resultant affective state.[5] Whether or not human beings think or act without feeling is not clear. Practically, distinctions are made and bridges built between affections and cognitions. The poet, T. S. Eliot, says that emotion is expressed in art only by providing cognitive data which will wake a given emotion. The skill of the artist lies in providing the "objective correlative" which will inevitably induce a particular emotion. This point of view is consistent with that which says that intellect is not a separate faculty but an activity of the whole organism which begins with sensory experiences and involves the emotions.[1] In any case, the affective domain of educational objectives is generally accepted as desirable and, operationally, is defined as the "actions, feelings, and thoughts students are expected to develop as a result of the instructional process."[2]

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[1] Jerome Bruner, The Process of Education (Cambridge, Mass.: Harvard University Press, 1960), p. 73.

[2] Ruth Andrus, quoted in The Beam, XVI, No. 8 (August, 1965), p. 48.

[3] David R. Krathwohl, Benjamin S. Bloom and Bertram B. Masia, Taxonomy of Educational Objectives, Handbook II: Affective Domain (New York: David McKay Co., 1964), p. 20.

[4] *Ibid*., p. 55.

[5] Richard Alpert, "The Shaping of Motives for Learning," Human Variability and Learning (Washington: ASCD, NEA), p. 30.

One aspect of affective behavior was selected for study in this research project. The use of television has raised disturbing questions with regard to the inculcation of attitudes favorable to the medium and therefore, presumably, favorable to the educational process. Numerous experiments might be cited in which college students indicated negative attitudes toward televised instruction; and college faculties, as a rule, have been conservative--to say the least--in their acceptance of the medium in or out of the classroom.[3] Younger children and adults have been more enthusiastic. Most studies, however, have tended to be peripheral to the central question of lesson effectiveness, with the judgments or opinions elicited from teachers, students, and administrators colored by elements other than the product itself.[4]

## Mood as an Indicator of Affective Behavior

If the objective of university instruction is to develop in students a desire for self-education, then students must be stimulated by the instructional process itself. If television is an intervening variable in the process, does it act to neutralize potential attitudinal effects? For example, does it reduce the impact of the teacher as an emotional catalyst to students?

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[1] Harold Taylor, Art and the Intellect (New York: The Museum of Modern Art, 1960), p. 12.

[2] Krathwohl, *op. cit.*, p. 4.

[3] Wilbur Schramm, "What We Know About Learning from Instructional Television," Educational Television, the Next Ten Years (U.S. Government Printing Office, 1965), pp. 52-76.

[4] Judith Murphy and Ronald Gross, Learning by Television (New York: The Fund for the Advancement of Education, 1966), p. 58.

The decision was therefore made to use student mood as the measure of teacher effect. In Krathwohl's taxonomy, this determination would be equivalent to his "Satisfaction in Response," where the essential task is to determine the feeling of satisfaction or other emotional reaction accompanying a particular behavioral state.[1] Krathwohl has some reservations about the exact location of this emotional component in an affective response continuum since it tends to permeate the entire system. He also tends to describe the component only in positive terms,[2] whereas studies in mood have described numerous negative aspects.

The concept of mood, furthermore, has not occupied an important place in psychological theory, according to the person who has done perhaps the most extensive work in the field.[3] In layman's terms, mood has been a part of the language for many years as a term to describe some general state of being. However, some aspects of mood, such as aggression, anxiety, and activation, have been studied extensively, and the formal literature on mood is increasing. Nowlis has defined mood as the effect on a person of his own configurations of activity, and has summarized certain applications.[4] For example, mood refers to dispositions which are temporary and reversible. As a consequence, subjects can and do report their momentary feelings with no concern for any social desirability or status which might relate to their temporal report. Moods always refer to the whole person. People have a tendency to define their mood by using adjectives which complete the sentence, "I feel __________." Since it does refer to an entire person, it follows that mood is multidimensional. Mood is dispositional in nature, and probably in a psychological hierarchy in which emotions are identified as first-order dispositions, mood as second-order dispositions, and temperament is a third-order and a more nearly permanent disposition. Moods are related to a complex of internal and external controls. Certain responses which vary with mood change are predictors of other co-varying responses.

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[1] Krathwohl, op. cit., p. 132.

[2] Ibid., p. 179.

[3] Vincent Nowlis, "Research with the Mood Adjective Check List." Report prepared for book chapter. (1965), p. 43. (Mimeographed)

[4] Vincent Nowlis, "The Concept of Mood," in Conflict and Creativity, ed. by Seymour M. Farber and Roger H. L. Wilson (New York: McGraw Hill Book Co., 1963).

For many of the experiments reported in the literature, and for this research, the Mood Adjective Check List (MACL) developed by Nowlis and his associates has been used as the instrument to assess mood.[1] With appropriate instructions and test items it is always possible for a person to give a verbal report of how he feels at the moment he reads a test item. Approximately twelve dimensions of mood have been identified by factor analytic studies by means of a centroid factor analysis and rotation to simple structure. Adjectives with consistent and high loadings on the factors constitute the Mood Adjective Check List. Each adjective is scored with respect to four levels of relevance to present mood. The moods and corresponding adjectives are shown in Table 43.

## Television Teaching and Mood Change--Experiments and Results

The teaching experiment was designed to ascertain students' moods immediately prior to and following each lecture. One aspect of mood theory suggests that, internally, moods may be considered as goals. To achieve certain goals, a person is constantly manipulating his own mood state. Since it has been shown that attitudes, beliefs, and goals are interrelated, with manipulation of any one influencing the others, we may hypothesize that changes in moods that occur concomitant to the chemistry lecture presented by Professor Burtt should be accompanied by modifications in attitudes toward various aspects of the

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[1] See Appendix C.

## TABLE 43

### DEFINITIONS OF STUDENT MOODS
(From the Mood Adjective
Check List (MACL) Developed
by Vincent Nowlis, Ph.D.,
University of Rochester)

1. Vigor--being active, energetic, and vigorous
2. Aggression--being defiant, fed-up, and rebellious
3. Anxiety--being clutched up, fearful, and insecure
4. Concentration--being concentrating, engaged-in-thought, and serious
5. Fatigue--being drowsy, sluggish, and tired
6. Sadness--being blue, regretful, and sad
7. Egotism--being boastful, egotistic, and self-centered
8. Elation--being elated, lighthearted, and pleased
9. Skepticism--being skeptical and suspicious
10. Social Affection--being affectionate, kindly, and warmhearted
11. Surgency--being carefree, nonchalant, and playful
12. Inspiration*--being inspired, resourceful, and stimulated

*Not identified by Nowlis but included by Myers because of hypothesized validity in a teaching-learning situation.

lecture, including the teacher who was the primary focus. The assumption is that teacher induced mood is related to perception of the teacher.

Within undefined limits, it is believed that a person tends to place high value on the moods he is in and to place a low value on the moods he is not in. ". . .there is. . .a time to every purpose under the heaven. . .a time to weep, and a time to laugh; a time to mourn and a time to dance. . ."[1] One may turn on a television set expecting to relax for an hour, and place a relatively low value on concentration; or one may tune in to a presidential news conference with the opposite expectation and place a high value on concentration. The situation determines the desirable moods, and a person will strive for internal closure by aligning his moods accordingly.

Table 44 shows the responses to the various moods by students before and after exposure to Professor Burtt's chemistry lecture.

The overall mood of the 706 students enrolled in the chemistry course as they prepared to participate in the class could be described as follows: The class considered that it was Concentrating a great deal. Social Affection was quite strong, as was Inspiration. In terms of Vigor and Fatigue, both moods were fairly pronounced, indicating a substantial number who felt Vigorous and a substantial number who felt Fatigued. The class was in a moderately Elated mood, and somewhat less Surgent. The class was quite Skeptical. The class exhibited some, but certainly not strong, feelings of Anxiety, Sadness, Egotism, and Aggression.

In positive terms, the class indicated that it was feeling active, concentrating, elated, affectionate and inspired--a mood-complex that would seem to be conducive to effective participation in the role of learner in the teaching situation to follow.

At the conclusion of the Ben Burtt lecture, significant changes were found to have occurred with all twelve mood factors. A very large change occurred in Fatigue, students decreasing significantly on the factor. Concurrently, a large increase occurred with the "companion" factor of Vigor. In addition to considering themselves to

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[1] Ecclesiastes: 3: 1,4.

## TABLE 44

## RESPONSES TO MOOD FACTORS BY STUDENTS EXPOSED TO PROFESSOR BEN BURTT

| Mood Factors | Raw Scores |  | Change | Sigma, Change | "t" |
|---|---|---|---|---|---|
|  | Pre-Lesson | Post-Lesson |  |  |  |
| Aggression | 1.1332 | 0.5510 | - .5822 | 1.5562 | 10.250 |
| Concentration | 6.0199 | 6.2635 | .2436 | 2.1633 | 2.993 |
| Fatigue | 3.7011 | 2.2195 | -1.4816 | 2.6227 | 15.001 |
| Social Affection | 4.2876 | 3.7224 | - .5652 | 1.8604 | 8.074 |
| Anxiety | 1.4660 | 0.6995 | - .7705 | 1.5802 | 12.971 |
| Elation | 3.3909 | 4.0127 | .6218 | 2.2537 | 7.333 |
| Egotism | 1.1813 | 0.8980 | - .2833 | 1.5238 | 4.936 |
| Vigor | 3.5978 | 4.4207 | .8229 | 2.3258 | 9.405 |
| Surgency | 2.8966 | 2.6091 | - .2875 | 2.0780 | 3.676 |
| "Inspiration" | 3.9717 | 5.0000 | 1.0283 | 2.2773 | 12.000 |
| Sadness | 1.3314 | 0.6898 | - .6416 | 1.6224 | 10.484 |
| Skepticism | 1.7918 | 0.8244 | - .9674 | 1.5942 | 16.123 |

be more Vigorous at the conclusion of the lecture, students also indicated significant positive changes in moods labeled Concentration, Elation, and Inspiration. Social Affection, formerly quite high, became significantly less intense although still quite pronounced. Surgency also became less pronounced. While students were very Skeptical before the class, they were much less so afterwards. Likewise, Anxiety, Sadness, Egotism, and Aggression--each initially low--showed further decreases in intensity.

From a purely subjective point of view, one might conclude that this lecture, presented near the beginning of the chemistry course (the second lecture period), was quite successful in polarizing a mood-complex inimical to student satisfaction with the course.

One might conjecture that the post-lesson moods described by students would be reflections of the lesson in which they had participated and over which the teacher exerted control, and that the mode of presentation might affect moods. The Ben Burtt teaching experiment permitted a comparative analysis of mood changes during the conduct of the lecture between the class receiving the lecture on television and the class receiving instruction in the normal manner.

Table 45 shows the extent of mood change on eleven mood factors[1] for the television lecture section and the classroom lecture section. Students in the television section reported significant mood changes on nine of eleven factors. Concentration and Surgency did not change significantly. As will be seen momentarily, students came into the lecture in a sufficiently high mood of Concentration that lack of significant change is actually reassuring. Students in the classroom lecture reported significant mood changes on all eleven factors.

On terms of differences in mood-change between the two sections, students in the classroom section reported a significantly greater change in mood on the factor of Concentration than students in the television section. Conversely, students in the television section reported a

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[1] Because of computer program limitations, only eleven of twelve mood factors could be analyzed. The mood of Fatigue was arbitrarily excluded.

## TABLE 45

### ANALYSIS OF VARIANCE OF TELEVISION SECTION AND CLASSROOM SECTION ON THE BASIS OF ELEVEN MOOD-CHANGE FACTORS
(TV = 242, Class = 231; m = 1, n = 471)

| Mood-Change Factor | Variance/df | | Mood Change | | F-Ratio |
|---|---|---|---|---|---|
| | Between | Within | TV | Class | |
| Aggression | 0.0015 | 2.5651 | - .6942 | -.6970 | 0.0006 |
| Concentration | 31.8457 | 4.8023 | - .0992 | .4199 | 6.6313** |
| Social Affection | 1.4343 | 3.5661 | - .5041 | -.3939 | 0.4022 |
| Anxiety | 4.9597 | 2.8878 | - .9711 | -.7662 | 1.7175 |
| Elation | 30.4602 | 5.4296 | .9752 | .4675 | 5.6100* |
| Egotism | 0.8977 | 2.8053 | - .2851 | -.3723 | 0.3200 |
| Vigor | 4.3056 | 5.8820 | .8099 | .6190 | 0.7322 |
| Surgency | 11.4515 | 4.9161 | - .0826 | -.3939 | 2.3294 |
| Inspiration | 4.8271 | 5.2335 | .8802 | 1.0823 | 0.9224 |
| Sadness | 4.2427 | 2.9072 | - .8388 | -.6494 | 1.4593 |
| Skepticism | 0.4277 | 2.5676 | -1.0083 | -.9481 | 0.1666 |

Means and Sigmas

| | Concentration | | Elation | |
|---|---|---|---|---|
| Television Section | -.0992 | 2.0627 | .9752 | 2.3354 |
| Classroom Section | .4199 | 2.3097 | .4675 | 2.3146 |

*p < .05; **p < .01

significantly greater change in mood on the factor of Elation. No other significant differences were noted. Comment on the two observed differences, however, should be related to the data in Table 46.

Table 46 examines the moods reported by students immediately following the lesson. The significant fact is the observation that no significant differences were found between the two sections. Students who received Professor Burtt's lecture by television reported essentially the same complex of moods as students who received the lecture directly.

Students in the 1:00 P. M. (live presentation) section reported a significantly greater positive change in the mood of Concentration than did students in the 11:00 A. M. (television presentation) section. But students in the 11:00 A. M. section were in a mood of greater Concentration prior to the lesson than those in the 1:00 P. M. section immediately after the lunch hour. Students in the 11:00 A. M. section remained in a mood of high Concentration after the lesson, while students in the 1:00 P. M. section approached this degree of Concentration.

Students in both sections reported significant increases in the mood of Elation. In this instance, students in the 11:00 A. M. section were in a significantly less pleasant frame of mind prior to the lesson than students in the 1:00 P. M. section. At the conclusion of the lesson, students in the 11:00 A. M. section showed a significantly greater positive change on this factor. As a result, the initial differences were eliminated, and the two sections reported nearly identical degrees of Elatedness after their lesson.

The two significant mood-changes observed were thus seemingly unrelated to the mode of presentation. Professor Burtt, with his chemistry lesson, was able to achieve the same mood-complex at the conclusion of this lecture by television as he was able to achieve in the classroom in person. The medium of television was no barrier in this endeavor.

Flanders has discussed "classroom climate" as a set of generalized attitudes toward the teacher and class

## TABLE 46

## ANALYSIS OF VARIANCE OF TELEVISION SECTION AND CLASSROOM SECTION ON THE BASIS OF ELEVEN POST-LESSON MOOD FACTORS

(TV = 242, Class = 231; m = 1, n = 471)

| Post-Lesson Mood Factor | Variance/df | | Means | | F-Ratio |
|---|---|---|---|---|---|
| | Between | Within | TV | Class | |
| Aggression | 4.1823 | 1.9245 | 0.4959 | 0.6840 | 2.1732 |
| Concentration | 0.4118 | 5.1915 | 6.2149 | 6.1558 | 0.0793 |
| Social Affection | 0.4229 | 6.3093 | 3.8926 | 3.9524 | 0.0670 |
| Anxiety | 0.4804 | 2.1570 | 0.7025 | 0.7662 | 0.2227 |
| Elation | 0.0169 | 5.2962 | 4.2521 | 4.2641 | 0.0032 |
| Egotism | 5.4169 | 2.8301 | 0.8595 | 1.0736 | 1.9141 |
| Vigor | 17.5975 | 7.1769 | 4.7149 | 4.3290 | 2.4520 |
| Surgency | 4.9115 | 6.1221 | 2.8264 | 3.0303 | 0.8023 |
| Inspiration | 0.5352 | 5.5792 | 5.1322 | 5.0649 | 0.0959 |
| Sadness | 1.2709 | 2.3124 | 0.6322 | 0.7359 | 0.5496 |
| Skepticism | 0.1450 | 1.9245 | 0.9008 | 0.8658 | 0.0753 |

which students share in common despite individual differences.[1] These common attitudes create a relatively social atmosphere, or climate, which is similar to the theory of Unanimism expounded by the French novelist, Romains.[2] When a single event or purpose or emotion molds a collection of individuals into a group, the group feels and thinks in a way of its own. Highet reminds readers of the pleasure in teaching when one feels he is being heard not by a collection of individuals but by a group which one creates. Professor Burtt achieved a similar group success with his lecture. Based on the experiment, one may conclude that students do report significant changes in mood following presentation of a chemistry lesson, and that the directions and degrees of change are such that comparable post-lesson mood-complexes are reported by students when the instruction is received either by television or by regular classroom presentation.

The Frank Funk-Irving Lee television experiments included 163 students who saw both lectures and who also indicated their moods at the beginning and end of each lecture. Again, the assumption is made that student responses are reflections of the total gestalt in which the teacher is probably the critical factor. Tables 47 and 48 show the student responses to the Mood Adjective Check List before and after the lectures by Professor Funk and Professor Lee, respectively.

Each lecture resulted in a large number of statistically significant changes in mood, as reported by students. Nine of twelve MACL factors showed significant change after the Funk lecture; seven after Lee. From an instructional effectiveness point of view, the changes occuring during Professor's Funk's lecture would seem viable for learning to occur. The class indicated that it was Concentrating, Affectionate, Surgent, Vigorous, Pleased, and Inspired. The mood complex could certainly be described as positively oriented, perhaps to a degree inimical to intense intellectuality. According to the student reports, at the conclusion of the lecture they became less Aggressive, Fatigued, Socially Affectionate,

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[1] Ned A. Flanders, Teacher Influence, Pupil Attitudes, and Achievement. OE-25040 Cooperative Research Monograph No. 12 (Washington: Superintendent of Documents, U. S. Government Printing Office, 1965), p. 3.

[2] Highet, op. cit., p. 55.

## TABLE 47

### MACL RESPONSES TO MOOD FACTORS BY 163 STUDENTS EXPOSED TO PROFESSOR FRANK FUNK

| Mood Factor | Pre-Lesson | Post-Lesson | Change | $\sigma_D$ | t |
|---|---|---|---|---|---|
| Aggression | 1.5706 | 1.1227 | -.4479 | 1.6210 | 3.526 |
| Concentration | 5.2577 | 5.5583 | .3006 | 2.4145 | 1.590 |
| Fatigue | 3.1472 | 2.7607 | -.3865 | 2.3817 | 2.071 |
| Social Affection | 4.6073 | 3.8466 | -.7607 | 1.8695 | 5.196 |
| Anxiety | 1.6565 | 1.1902 | -.4663 | 1.5558 | 3.825 |
| Elation | 3.6196 | 3.5276 | -.0920 | 2.0086 | 0.585 |
| Egotism | 1.7914 | 1.2086 | -.5828 | 1.3738 | 5.416 |
| Vigor | 3.8896 | 3.7362 | -.1534 | 2.1005 | 0.933 |
| Surgency | 3.8037 | 2.9448 | -.8589 | 1.8989 | 5.776 |
| Inspiration | 3.6135 | 4.1595 | .5460 | 2.0818 | 3.348 |
| Sadness | 1.6787 | 1.1902 | -.4785 | 1.4709 | 4.154 |
| Skepticism | 1.8466 | 1.2270 | -.6196 | 1.3576 | 5.829 |

## TABLE 48

### MACL RESPONSES TO MOOD FACTORS BY 163 STUDENTS EXPOSED TO PROFESSOR IRVING LEE

| Mood Factor | Pre-Lesson | Post-Lesson | Change | $\sigma_D$ | t |
|---|---|---|---|---|---|
| Aggression | 1.4662 | 1.3067 | -.1595 | 1.5544 | 1.310 |
| Concentration | 4.1963 | 4.5215 | .3252 | 2.1844 | 1.901 |
| Fatigue | 2.3558 | 3.0184 | .6626 | 2.4147 | 3.504 |
| Social Affection | 4.0061 | 3.4785 | -.5276 | 1.8111 | 3.718 |
| Anxiety | 1.0981 | 1.0245 | -.0736 | 1.2313 | 0.763 |
| Elation | 3.4110 | 2.7975 | -.6135 | 2.0762 | 3.773 |
| Egotism | 1.6748 | 1.3374 | -.3374 | 1.4108 | 3.053 |
| Vigor | 4.0246 | 2.7853 | -1.2393 | 2.3779 | 6.652 |
| Surgency | 3.6810 | 2.8221 | -.8589 | 2.0571 | 5.331 |
| Inspiration | 3.2884 | 3.0307 | -.2577 | 2.3304 | 1.412 |
| Sadness | 1.1411 | 1.0429 | -.0982 | 1.0978 | 1.142 |
| Skepticism | 1.2884 | 1.0307 | -.2577 | 1.3227 | 2.487 |

Anxious, Egotistical, Surgent, Sad, and Skeptical. They became more Inspired. They remained moderately Elated and Vigorous, and maintained a high degree of Concentration.

Professor Lee's lecture also resulted in students becoming less Socially Affectionate, Egotistical, Surgent, and Skeptical. In addition, they reported very little Aggression, Anxiety, or Sadness; although these states resulted less from changes concomitant with the lecture than from low levels prior to the lecture. They reported that they were in a higher state ($p < .10$) of Concentration. However, they indicated a tendency, not statistically significant, to become less Inspired, became much less Vigorous, and much more Fatigued. None of these changes would seem desirable.

Students reported significantly greater moods of Concentration, Social Affection, Inspiration, Fatigue, Skepticism, Sadness, and Anxiety prior to the Funk lecture than to the Lee lecture. It is, therefore, not surprising that more changes occurred during the Funk lecture.

As the students approached the Funk lecture, they reported being in a significantly greater mood of Concentration than for the Lee lecture. For both lectures, there was a tendency to concentrate more at their conclusion. The relative positions were thus maintained at a slightly improved level.

Students reported being in a significantly greater mood of Inspiration prior to the Funk lecture. At its conclusion, they felt inspired to a significantly greater degree. No significant change in level occurred during the Lee lecture.

Students also reported being in a significantly greater mood of Social Affection prior to the Funk lecture. After both lectures, students reported significant decreases on this factor. Their relative status remained unchanged, with students reporting a greater mood of Social Affection after exposure to Professor Funk than after exposure to Professor Lee.

Prior to both lectures, students reported similar levels of Vigor and Elation. After the lectures, students exposed to Professor Funk reported approximately the same level of Vigor and Elation, while students exposed to Professor Lee reported significant decreases on each factor. Thus, at the conclusion of the Funk lecture, students felt Vigorous and Elated to a significantly higher degree than they did at the conclusion of the Lee lecture.

On two factors, Surgency and Egotism, students reported approximately the same degree of mood prior to each lecture, and significant decreases to comparable levels at the conclusion of each.

Students, prior to the Funk lecture, reported a significantly greater level of Fatigue. Students exposed to Professor Funk decreased significantly on this factor while students exposed to Professor Lee increased significantly. At the conclusion of the lectures, the initial difference had disappeared.

Nearly identical patterns of mood occurred for Skepticism, Sadness, and Anxiety. For each, students reported a significantly higher mood prior to the Funk lecture, but reported a significant decrease at its conclusion; so that no significant differences were observable between Funk and Lee after the experimental lectures.

The William Sheldon experiment was also designed to measure student reports of changes in mood or feeling between the beginning and the end of the lecture, and to relate mood to teacher ratings and student personality characteristics. Table 49 summarizes the students' verbal reports of mood as estimated by the Mood Adjective Check List (MACL).

The class as a whole considered itself to be in a mood of high Concentration. Social Affection was quite strong. Both Fatigue and Vigor were moderately strong, as also were Surgency, Elation, and Inspiration. The class was quite Skeptical. It indicated relatively weak feelings of Aggression, Anxiety, Egotism, and Sadness.

At the close of the lecture, significant changes were reported on every factor. Students considered themselves to be Concentrating and Inspired to a significantly greater degree. Social Affection, Surgency, and Elation became significantly less intense, although still quite pronounced. Students were much less Skeptical at the

## TABLE 49

## MACL RESPONSES TO MOOD-FACTORS BY 260 STUDENTS EXPOSED TO PROFESSOR WILLIAM SHELDON

| Mood Factor | Pre-Lesson | Post-Lesson | Change | $\sigma_D$ | $t$ |
|---|---|---|---|---|---|
| Aggression | 1.6923 | 1.2038 | -.4885 | 1.5127 | 5.208 |
| Concentration | 5.2692 | 5.7154 | .4462 | 2.0128 | 3.572 |
| Fatigue | 3.7808 | 3.4154 | -.3654 | 2.2331 | 2.638 |
| Social Affection | 4.1792 | 3.9808 | -.7384 | 1.6041 | 7.421 |
| Anxiety | 1.3346 | 1.0385 | -.2961 | 1.3275 | 3.593 |
| Elation | 3.7346 | 3.3000 | -.4346 | 1.8751 | 3.737 |
| Egotism | 1.2577 | 0.8923 | -.3654 | 1.2760 | 4.614 |
| Vigor | 3.6808 | 3.4115 | -.2693 | 2.1229 | 2.054 |
| Surgency | 3.7346 | 2.9692 | -.7654 | 1.8315 | 6.738 |
| Inspiration | 3.5077 | 3.9000 | .3923 | 2.1810 | 2.899 |
| Sadness | 1.5269 | 1.2385 | -.2385 | 1.4658 | 2.624 |
| Skepticism | 1.8269 | 1.3923 | -.4346 | 1.4929 | 4.693 |

conclusion of the class. Likewise, Aggression, Anxiety, Egotism, and Sadness--each initially low--showed further decreases in intensity. Students became less Fatigued. However, they also reported that they became significantly less Vigorous. This last reaction is the only result for which one might have wished a reversal to occur.

The lecture by Professor Lawrence Myers was accompanied by significant changes in nine of twelve MACL factors. Students reported decreases in six factors (Aggression, Fatigue, Anxiety, Sadness, Skepticism, Egotism) and increases in three factors (Concentration, Elation, Inspiration). The three remaining factors (Social Affection, Vigor, Surgency) maintained their high pre-lesson levels. These data are reported in Table 50.

With two exceptions, a totally different mood-pattern resulted from Professor Charles Siepmann's lecture. Seven significant changes were reported. Students decreased on five factors (Social Affection, Elation, Vigor, Egotism, and Surgency) and increased on two (Concentration, Fatigue). The remaining factors (Aggression, Sadness, Anxiety, Skepticism, Inspiration) maintained pre-lesson levels. These data are reported in Table 51.

For this experiment only, dimensions labeled Euphoria and Dysphoria were also studied. Euphoria, or "good mood," was defined as an arithmetic combination of Elation, Vigor, and Surgency, and Dysphoria, or "bad mood," as the sum of Aggression, Anxiety, and Sadness.[1] The lesson by Professor Myers was accompanied by a significant decrease in Dysphoria; while the lesson by Professor Siepmann was accompanied by a significant decrease in Euphoria.

The statistical design of the Myers-Siepmann experiment permitted a comparative examination of student moods and mood-changes on the basis of sex and year in school in addition to the teachers. Fifteen graduate students were excluded from the comparisons, leaving 191 students who saw and reacted to both Professor Myers and

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[1] Vincent Nowlis, "Research with the Mood Adjective Check List," op. cit., p. 19.

## TABLE 50

## MACL RESPONSES TO MOOD FACTORS BY 206 STUDENTS EXPOSED TO PROFESSOR LAWRENCE MYERS

| Mood Factor | Pre-Lesson | Post-Lesson | Change | $\sigma_D$ | *t* |
|---|---|---|---|---|---|
| Aggression | 1.5485 | 1.0825 | -.4660 | 1.5472 | 4.31 |
| Concentration | 5.0534 | 5.5146 | .4612 | 2.2417 | 2.96 |
| Fatigue | 3.0388 | 2.2621 | -.7767 | 1.9948 | 5.59 |
| Social Affection | 4.7136 | 4.6456 | -.0680 | 1.6206 | 0.60 |
| Anxiety | 1.2524 | 0.8883 | -.3641 | 1.3541 | 3.87 |
| Elation | 3.8495 | 4.1602 | .3207 | 2.3966 | 1.92 |
| Sadness | 1.4175 | 0.8738 | -.5437 | 1.4400 | 5.44 |
| Skepticism | 1.7718 | 1.2816 | -.4902 | 1.4201 | 4.95 |
| Vigor | 4.0000 | 4.2136 | .2136 | 2.3919 | 1.28 |
| Egotism | 2.0728 | 1.7718 | -.3010 | 1.6000 | 2.71 |
| Surgency | 3.9660 | 3.8786 | -.0874 | 2.1525 | 0.58 |
| Inspiration | 4.2136 | 4.6942 | .4806 | 2.5398 | 2.72 |
| Euphoria | 11.8155[a] | 12.2524 | .4369 | 5.4074 | 1.16 |
| Dysphoria | 4.2184[b] | 2.8446 | -1.3738 | 3.5022 | 6.45 |

[a] Euphoria, or "good mood," is the sum of Elation, Vigor, and Surgency.

[b] Dysphoria, or "bad mood," is the sum of Aggression, Anxiety, and Sadness.

## TABLE 51

## MACL RESPONSES TO MOOD FACTORS BY 206 STUDENTS EXPOSED TO PROFESSOR CHARLES SIEPMANN

| Mood Factor | Pre-Lesson | Post-Lesson | Change | $\sigma_D$ | *t* |
|---|---|---|---|---|---|
| Aggression | 1.6311 | 1.6165 | -.0146 | 2.1293 | 0.01 |
| Concentration | 4.6262 | 5.5922 | .9660 | 2.4781 | 5.62 |
| Fatigue | 2.8301 | 3.2961 | .4660 | 2.7317 | 2.45 |
| Social Affection | 4.3689 | 3.8010 | -.5679 | 1.8364 | 4.44 |
| Anxiety | 1.3932 | 1.2233 | -.1699 | 1.4194 | 1.72 |
| Elation | 3.6214 | 2.6942 | -.9272 | 2.2028 | 6.02 |
| Sadness | 1.5291 | 1.4709 | -.0582 | 1.6210 | 0.52 |
| Skepticism | 1.5437 | 1.4320 | -.1117 | 1.6346 | 0.98 |
| Vigor | 3.6019 | 2.8835 | -.7184 | 2.3788 | 4.33 |
| Egotism | 1.9767 | 1.5291 | -.4466 | 1.3846 | 4.65 |
| Surgency | 3.5825 | 2.3689 | -1.2136 | 2.0409 | 8.55 |
| Inspiration | 4.0437 | 4.0000 | .0437 | 2.6411 | 0.24 |
| Euphoria | 10.8058 | 7.9466 | -2.8592 | 4.7383 | 8.67 |
| Dysphoria | 4.5534 | 4.3107 | -.2427 | 3.6195 | 0.96 |

Professor Siepmann. The sample comprised 158 females and 224 males; and 150 freshmen, 124 sophomores, and 108 upperclass students.

At the beginning of the lessons, students preparing to watch Professor Myers indicated that they were in a significantly higher mood of Concentration and Surgency than the students preparing to watch Professor Siepmann. At the end of the lectures, Professor Siepmann's class reported significantly higher moods on four factors (Aggression, Fatigue, Anxiety, and Sadness); whereas Professor Myers' class reported significantly higher moods on five factors (Social Affection, Elation, Vigor, Surgency and Inspiration).

Several significant differences were noted by sex. Prior to the lessons, men reported higher mood scores than women on three factors (Aggression, Skepticism, and Egotism). At lesson's end, men continued to report higher scores on Aggression and Skepticism--and on Sadness. Prior to the lesson, women reported higher mood scores than men on three factors (Social Affection, Elation, and Vigor). At lesson's end, women continued to report higher scores on Social Affection and Elation--and on Surgency. In general, therefore, sex differences in mood tended to remain constant whereas teacher differences changed radically. At the same time there were no meaningful and significant interactions with a single exception: women watching Professor Myers and men watching Professor Siepmann reported higher scores on the mood of Vigor than did their opposites.

Prior to the lessons, sophomores reported higher mood scores than freshmen or upperclassmen on the factors of Fatigue, Sadness, and Skepticism; and freshmen reported higher mood scores on Vigor and Elation. At the conclusion of the lessons, these differences were not significant with one exception. Freshmen continued to report a higher state of Elation. Additionally, upperclass students now reported significantly higher scores on Egotism. Only one significant interaction appeared between sex and class--sophomore females reported higher post-lesson Anxiety scores. No significant interactions were reported between teacher and class.

In summary, the differences reported by students in their mood-complex when exposed both to Professor Myers and Professor Siepman occurred independently of sex, year in school, or interactions between the variables; but were significantly related to the teachers and, presumably, the environment created by them and their treatment of their subjects.

## Relationships Between Moods and Teacher Ratings

If the theory is correct that moods, seen as goals, and attitudes are related, one might conjecture that changes in moods would be accompanied by variations in the valuations placed on certain teacher traits. A person who acquired a feeling of Vigor might be more likely to judge a teacher as Active than a person who either did not acquire this feeling or become less vigorous. The experimental design, however, did not permit a measure of teacher rating change from beginning to end of a lesson. Teacher ratings were made only at the lesson's conclusion. In the process of data tabulation, it became evident that, in many instances, mood change per se might obscure the nature of the relationships between mood and teacher traits. For example, a person might be in a mood of high concentration before a lesson (perhaps in anticipation, as a goal-oriented mood) and continue to be in a mood of high concentration at its conclusion. Both conditions would seem not only appropriate but desirable; one comes to a lesson in a "proper" frame of mind and remains so. This person may rate the teacher high on certain personality traits. Yet, these high ratings will be unrelated to mood change as there simply cannot be any positive change. It was therefore decided to limit the examination to the relationships between post-lesson moods and teacher traits. The implicit assumption was that at any given instant the moods reported by a person may be related coincidentally to assessment of teacher traits.

Table 52 shows the correlation coefficients between 12 post-lesson moods and 15 teacher traits identified in Professor Burtt's chemistry lesson experiment.

Sixty-four of 180 possible relationships (35.6 percent) differ significantly from zero at the .05 level

## TABLE 52

## RELATIONSHIPS BETWEEN POST-LESSON MOOD SCORES AND TEACHER TRAIT FACTOR SCORES, PROFESSOR BEN BURTT EXPERIMENT[a]

| Mood | Factor | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 sti | 2 dyn | 3 con | 4 nat | 5 fri | 6 int | 7 for | 8 ctl | 9 pro | 10 ass | 11 comm | 12 comp | 13 wit | 14 dir | 15 org |
| Aggression | -055 | 014 | -046 | -048 | 060 | -139* | 013 | -030 | -026 | 059 | -077 | -003 | -024 | -120 | -120 |
| Concentration | 163 | 118 | 061 | 053 | 015 | 027 | 076 | 057 | 081 | 103 | -025 | -016 | -114 | 136 | 096 |
| Fatigue | -107 | -135 | -206 | -064 | 100 | -032 | -046 | -035 | -076 | -004 | -086 | -025 | 038 | -084 | -023 |
| Social Affection | 052 | 016 | -017 | -014 | 047 | 048 | 063 | 044 | 097 | 058 | 021 | 044 | 108 | 105 | 088 |
| Anxiety | -015 | 069 | -037 | 022 | -038 | -151 | 017 | 064 | 004 | -009 | -151 | -004 | 014 | 039 | -149 |
| Elation | 192 | 044 | 081 | 015 | 033 | 054 | 082 | 057 | 120 | 052 | 072 | -043 | 203 | 126 | 081 |
| Egotism | 087 | -057 | 039 | -123 | -032 | -032 | 088 | 047 | 034 | 055 | 012 | -022 | 107 | -082 | 023 |
| Vigor | 236 | 161 | 080 | -052 | -022 | 067 | 101 | 099 | 140 | 114 | -047 | -032 | 060 | 161 | 004 |
| Surgency | 015 | -061 | 050 | -050 | 023 | -045 | 003 | -001 | -028 | 073 | -053 | 024 | 196 | 017 | 060 |
| Inspiration | 287 | 167 | 109 | -009 | -012 | 114 | 077 | 020 | 117 | 073 | 035 | -037 | 072 | 251 | 081 |
| Sadness | -132 | -022 | -045 | -042 | 075 | -087 | -052 | -027 | -032 | 022 | -060 | 002 | -137 | 034 | -116 |
| Skepticism | 021 | 016 | -035 | -101 | -110 | -051 | -062 | -053 | -073 | -062 | -128 | -001 | 049 | -089 | -036 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

of confidence. Every mood is related to a minimum of three Teacher Trait factors, and three moods (Concentration Vigor and Inspiration) are related to eight teacher traits.

The types of relationships are also quite consistent with the theory.

The mood of Concentration was positively related to the Teacher Trait factors of Stimulation (1), Dynamism (2), Forcefulness (7), Profundity (9), Assertiveness (10), Directness (14), and Organization (15). It was negatively related to Wit (13).

The moods of Vigor, Inspiration, and Elation were positively related to Stimulation (1), Confidence (3), Forcefulness (7), Profundity (9), and Directness (14). Vigor was also positively related to Dynamism (2), Control (8), and Assertiveness (10). Elation was also positively related to Wit (13) and Organization (15). Inspiration was also positively related to Dynamism (2), Intimacy (6), and Organization (15).

The mood of Social Affection was positively related to four Teacher Trait factors: Profundity (9), Wit (13), Directness (14), and Organization (15).

The remaining "positive" mood of Surgency was significantly related to only one factor, Wit (13).

The mood of Egotism exhibited a mixture of relationships with teacher trait scores. This mood was positively related to the Teacher Trait factors of Stimulation (1), Forcefulness (7), and Wit (13); but was negatively related to the Teacher Trait factors of Naturalness (4) and Directness (14).

Both the moods of Sadness and Fatigue were positively related to Teacher Trait factor 5, which was tentatively labeled as Friendliness. Otherwise, the relationships were as might have been predicted. Fatigue was negatively related to the teacher traits of Stimulation (1), Vigor (2), Confidence (3), Profundity (9), Communication (11), and Directness (14). Sadness was negatively related to Stimulation (1), Intimacy (6), Wit (13), and Organization (15).

The moods of Aggression and Anxiety were negatively related to the Teacher Trait factors of Intimacy (6), Communication (11), and Organization (15). Aggression was also negatively related to Directness (14).

The mood of Skepticism was negatively related to the Teacher Trait factors of Naturalness (4), Friendliness (5), Communication (11), and Directness (14).

One may infer that the types of relationships observed between post-lesson moods and ratings of Professor Burtt on the fifteen teacher traits are entirely consistent with the theory. The ratings given the teacher will in a great many instances be direct reflections of the moods the students are in, and the moods, in turn, will in many instances be reflections of the lesson in which the students have participated and over which the teacher has control.

The relationships between post-lesson moods and teacher traits derived from Professor Frank Funk's public address lesson are shown in Table 53. Forty seven of 192 possible relationships (24.5 percent) differ significantly from zero at the .05 level of confidence.

Three Teacher Trait factors, Composure (1), Intimacy (5), and Confidence (16) were unrelated to all post-lesson moods. Five additional factors, Impressiveness (3), Naturalness (4), Activity (7), Style (9), and Assertiveness (15) were related to one post-lesson mood each.

The Teacher Trait factor of Stimulation (2) was of special significance, being related to nine post-lesson mood scores. It was positively related to the moods of Concentration, Social Affection, Elation, Vigor, and Inspiration; and negatively related to the moods of Aggression, Fatigue, Sadness, and Skepticism.

Special attention should also be given to four other Teacher Trait factors. Dynamism (6) was positively related to the moods of Concentration, Elation, Vigor, and Inspiration; and negatively related to Fatigue and Sadness. Profundity (8) was positively related to the moods of Concentration, Vigor, and Inspiration; and negatively related to Aggression and Fatigue. Communication

## TABLE 53

## RELATIONSHIPS BETWEEN POST-LESSON MOOD SCORES AND TEACHER TRAIT FACTOR SCORES PROFESSOR FRANK FUNK EXPERIMENT[a]

| Mood | Factor | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 comp | 2 sti | 3 imp | 4 nat | 5 int | 6 dyn | 7 act | 8 pro | 9 sty | 10 comm | 11 wit | 12 for | 13 org | 14 clr | 15 ass | 16 ctl |
| Aggression | -067 | -259* | 058 | -152 | -079 | -038 | -070 | -161 | -021 | -109 | -106 | 123 | -213 | -159 | -012 | 058 |
| Concentration | -023 | 243 | -007 | 014 | 034 | 135 | 089 | 155 | -003 | 107 | 064 | -086 | 037 | 041 | 066 | -028 |
| Fatigue | -052 | -243 | -010 | -008 | -099 | -192 | -065 | -114 | -014 | -050 | 025 | 048 | -149 | -021 | -013 | -028 |
| Social Affection | 012 | 165 | 055 | 039 | -021 | 075 | 055 | 065 | 062 | 153 | 104 | -016 | -021 | -139 | 061 | -010 |
| Anxiety | -071 | -023 | -152 | 075 | -058 | -057 | -104 | -089 | 054 | 019 | -024 | -011 | -060 | 052 | 095 | -059 |
| Elation | -048 | 205 | 093 | 073 | -026 | 134 | 033 | 045 | 040 | 160 | 132 | 080 | 021 | -019 | -102 | -020 |
| Egotism | -109 | -045 | 084 | -051 | 081 | 088 | 015 | -045 | 064 | 057 | -081 | -040 | -195 | -181 | 080 | 025 |
| Vigor | -051 | 263 | 079 | 070 | 043 | 123 | 092 | 113 | 064 | 109 | 078 | -008 | 124 | -112 | -054 | -060 |
| Surgency | -081 | -039 | 036 | -070 | -037 | 022 | 005 | -056 | 011 | 091 | 032 | -030 | -014 | -138 | 075 | 009 |
| Inspiration | 005 | 369 | 076 | -005 | 000 | 287 | 099 | 114 | -039 | 202 | 139 | -022 | -069 | -013 | -017 | 038 |
| Sadness | -059 | -204 | -016 | -014 | -076 | -122 | -049 | -008 | 115 | -010 | 016 | 142 | -194 | -163 | 012 | -048 |
| Skepticism | -025 | -110 | 048 | -003 | -020 | -047 | -180 | -041 | -009 | -223 | -031 | 133 | -208 | -210 | 127 | 005 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

(1) was positively related to the moods of Social Affection, Elation, and Inspiration; and negatively related to Skepticism. Organization (13) was negatively related to the moods of Aggression, Fatigue, Egotism, Sadness, and Skepticism; but was positively related to Vigor.

Major inconsistencies appeared to occur with two Teacher Trait factors. Forcefulness (12) was positively correlated with three negative moods: Aggression, Sadness, and Skepticism. Clarity (14) was negatively correlated with the moods of Aggression, Egotism, Sadness, and Skepticism; but was also negatively correlated with the moods of Social Affection, Vigor, and Surgency.

The post-lesson moods of Elation and Inspiration were both positively related to the teacher traits of Stimulation (2), Dynamism (6), Communication (10), and Wit (11). Inspiration was also related to Profundity (8).

A comparative analysis of the Frank Funk lecture and the earlier Ben Burtt lecture indicates that the Teacher Trait factors of Stimulation, Dynamism, Profundity, Directness, and Organization show completely consistent relationships with post-lesson moods.

The relationships between post-lesson moods and teacher traits derived from Professor William Sheldon's experimental lecture are shown in Table 54. Forty-two of 144 possible relationships (29.2 percent) differ significantly from zero at the .05 level of confidence. Every Teacher Trait factor was related to at least one post-lesson mood. Conversely, every Mood factor was related to a minimum of two Teacher Trait factors.

The Teacher Trait factor of Stimulation (1) was positively correlated with the moods of Inspiration and Concentration and negatively correlated with Surgency. The factor of Composure (2) was negatively related to the moods of Aggression, Egotism, and Skepticism. The factor of Wit (5) was positively related to Social Affection and Elation. The Teacher Trait factor of Profundity (7) was positively related to the moods of Social Affection, Elation, Vigor, and Inspiration, and negatively related to Anxiety and Skepticism. The factor of Friendliness (9) was negatively related to Aggression, Anxiety, and Sadness. The factor of Dynamism (4) was positively related

# TABLE 54

## RELATIONSHIPS BETWEEN POST-LESSON MOOD SCORES AND TEACHER TRAIT FACTOR SCORES, PROFESSOR WILLIAM SHELDON EXPERIMENT[a]

| Mood | Teacher Trait Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 sti | 2 comp | 3 comm | 4 dyn | 5 wit | 6 sty | 7 pro | 8 org | 9 fri | 10 ass | 11 int | 12 ctl |
| Aggression | -048 | -141* | -070 | 088 | 054 | 050 | -121 | 082 | -241 | 050 | 080 | 143 |
| Concentration | 177 | -027 | 068 | -063 | 101 | 010 | 124 | -132 | 029 | 122 | -220 | 102 |
| Fatigue | -135 | 093 | 022 | -101 | -076 | -140 | -113 | 010 | 036 | 161 | 143 | -028 |
| Social Affection | -111 | 004 | 049 | 189 | 132 | 090 | 180 | -149 | -089 | -090 | -002 | 130 |
| Anxiety | 076 | -085 | -107 | -072 | -031 | 032 | -166 | 182 | -165 | 194 | -031 | -067 |
| Elation | -011 | 020 | -029 | 164 | 163 | 072 | 207 | -032 | -092 | -188 | -037 | 080 |
| Egotism | -035 | -187 | -078 | 184 | 034 | 052 | 042 | 061 | 010 | -116 | -092 | 003 |
| Vigor | 047 | -060 | 025 | 069 | 120 | 244 | 218 | -200 | -099 | -024 | -082 | 114 |
| Surgency | -165 | 008 | 007 | 165 | 103 | 026 | 064 | -025 | -065 | -134 | 006 | 021 |
| Inspiration | 236 | -073 | -125 | -001 | -062 | 098 | 204 | -091 | -020 | 045 | -087 | -023 |
| Sadness | -085 | -106 | -109 | 084 | -062 | -040 | -123 | 104 | -127 | 172 | 032 | 042 |
| Skepticism | 005 | -194 | -149 | 148 | -073 | 131 | 0151 | 210 | -082 | 033 | -118 | -052 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

to Social Affection, Elation, Egotism, and Surgency; but was also positively related to Skepticism.

The Teacher Trait factor of Assertiveness (10) was positively related to Fatigue, Anxiety, and Sadness, and negatively related to Elation and Surgency.

Some irregularities were found. The Teacher Trait factor of Communication (3) was negatively related to Skepticism, but also was negatively related to Inspiration. Style (6) was positively related to the mood of Vigor and negatively related to Fatigue, but also positively related to Skepticism. Organization (8) was negatively related to Vigor, as expected; but was also negatively related to Concentration and Social Affection and positively related to Anxiety and Skepticism. The factor of Intimacy (11) was positively related to Fatigue and negatively related to Concentration. Control (12) was positively related to the mood of Aggression.

The relationships between post-lesson moods and teacher traits for the lecture by Professor Lawrence Myers are shown in Table 55. Fifty-one of 156 possible relationships (32.7 percent) differ significantly from zero at the .05 level of confidence. Every Mood factor was related to at least one Teacher Trait factor. However, the Teacher Traits of Assertiveness (2) and Directness (11) were unrelated to all Mood factors.

Both Teacher Trait factors of Wit (2) and Profundity (3) were positively related to the Mood factors of Inspiration, Social Affection, Elation, Vigor, and Concentration, and negatively related to Aggressiveness, Fatigue, Sadness, and Skepticism. Profundity was also negatively related to Anxiety. A similar pattern was achieved with the Teacher Trait factor of Control (12) which was positively related to the Mood factors of Inspiration, Social Affection, Vigor and Concentration, and negatively related to Aggression, Fatigue, Sadness, and Skepticism.

The Teacher Trait factor of Stimulation (1) was positively related to the Mood factors of Inspiration, Vigor, and Egotism, and negatively related to Fatigue. Friendliness (10) was positively related to Social Affection and Concentration, and negatively related to

## TABLE 55

### RELATIONSHIPS BETWEEN 14 POST-LESSON MOOD SCORES AND 13 TEACHER TRAIT FACTOR SCORES, PROFESSOR LAWRENCE MYERS EXPERIMENT,[a] (N = 352)

| Scale | Factor | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 sti | 2 ass | 3 wit | 4 pro | 5 comm | 6 int | 7 org | 8 comp | 9 dyn | 10 fri | 11 dir | 12 conf | 13 ctl |
| Aggression | -026 | 058 | -184[b] | -231 | -117 | -117 | 151 | 014 | 088 | -146 | -065 | -123 | -199 |
| Concentration | 049 | -065 | 128 | 147 | -008 | 001 | -007 | -134 | 020 | 123 | 030 | 033 | 205 |
| Fatigue | -118 | 028 | -181 | -144 | -109 | -035 | 071 | -066 | -039 | -034 | 030 | -173 | -173 |
| Social Affection | 092 | 052 | 110 | 105 | -030 | 061 | -022 | 097 | -020 | 165 | -026 | -005 | 128 |
| Anxiety | 057 | 039 | -042 | -152 | 007 | -017 | -096 | -136 | 001 | -055 | 008 | -135 | -046 |
| Elation | 102 | 073 | 140 | 241 | -003 | 093 | -033 | 118 | 056 | 060 | -006 | 004 | 056 |
| Sadness | 011 | -031 | -162 | -234 | -086 | 028 | 078 | -017 | -004 | -145 | -040 | -183 | -140 |
| Skepticism | 049 | 095 | -140 | -242 | -149 | -048 | -029 | -130 | 059 | -032 | -085 | -109 | -129 |
| Vigor | 113 | 060 | 136 | 097 | 076 | 088 | -009 | 020 | 025 | 002 | -080 | 008 | 169 |
| Egotism | 114 | 076 | -048 | 012 | -088 | -044 | 046 | -038 | 084 | -091 | -083 | 002 | -061 |
| Surgency | -008 | 042 | 062 | 094 | -123 | 039 | 046 | 128 | 107 | 029 | -061 | 004 | -067 |
| Inspiration | 174 | -015 | 168 | 189 | 028 | -006 | -022 | -052 | 092 | 080 | -058 | 138 | 137 |
| EUPHORIA | 088 | 079 | 137 | 180 | -022 | 091 | -000 | 116 | 070 | 041 | -062 | 004 | 068 |
| DYSPHORIA | -000 | 039 | -162 | -240 | -077 | -051 | 056 | -056 | 032 | -135 | -040 | -166 | -167 |

[a] All figures should be multiplied by $10^{-3}$.

[b] Figures underlined are significant at the .05 level of confidence.

Aggression and Sadness. Confidence (11) was positively related to Inspiration, and negatively related to Aggression, Fatigue, Anxiety, Sadness, and Skepticism. Communication (4) was negatively related to Aggression, Fatigue, Skepticism, and Surgency. Dynamism (8) was positively related to Surgency, Organization (6) was positively related to Aggression, and Intimacy (5) was negatively related to Aggressiveness.

The Teacher Trait factor of Composure was positively related to the Mood factors of Inspiration, Elation, and Surgency, and negatively related to Anxiety, Skepticism, and Concentration.

If one summarizes the relationships between post-lesson moods and teacher ratings for the four experimental television lessons, certain patterns emerge. The Teacher Trait factor of Profundity appears to be consistently significantly related to the moods of Inspiration, Vigor, Concentration, Social Affection and Elation, and negatively related to Fatigue. The Teacher Trait factor of Stimulation is consistently significantly related to the moods of Inspiration, Vigor, and Concentration, and negatively related to Fatigue. The Teacher Trait factor of Wit is positively related to the moods of Social Affection and Elation. The Teacher Trait factor of Communication is negatively related to the moods of Skepticism and Aggression. These four Teacher Trait factors--Profundity, Stimulation, Communication, and Wit--are the only factors which show significant relationships with moods in at least three of the four experiments.

In two experiments, the Teacher Trait factor of Stimulation was positively related to Elation and negatively related to Sadness; Wit was negatively related to Sadness; Dynamism was positively related to Inspiration, Vigor, Elation, Concentration, and Surgency, and negatively related to Fatigue; Composure was negatively related to Skepticism; Profundity was negatively related to Anxiety; and Friendliness was negatively related to Aggression and Sadness. The additional Teacher Trait factors of Dynamism, Composure, and Friendliness are therefore of sufficient continuing interest to be worthy of further study but would not, on the basis of these experiments, appear to be as critical in the general assessment of mood as those described in the preceding paragraph. Of the 204 significant relationships identified in the four experiments (comprising 30.4 percent of the total cells), all but 23 (3.4 percent) were psychologically meaningful.

One may recall that significant mood changes occurred on most of the mood factors during each of the lessons. The analysis of post-lesson moods suggests that teachers who rate high on a limited number of traits are more likely to induce a "favorable" mood complex in students than teachers who do not rate as high. It will be further recalled that when students described an "Ideal Teacher," they placed the factors of Stimulation and Communication at the top of their list, while the factors of Wit and Profundity were placed lower on the scale of importance. In terms of establishing a favorable mood complex, these latter factors would appear to be of somewhat greater importance than originally anticipated.

## Relationships Between Student Personality Characteristics and Mood

The final set of relationships involved in this study of teacher effect consisted of the two elements previously analyzed in terms of their relationships to the Teacher Trait factors--student personality characteristics and student moods. It was hypothesized that these elements would be related in various ways to one another; that students possessing certain personality characteristics would be very likely to exhibit certain moods concomitant with the lesson. These relationships, in turn, might be related to the teacher ratings. Table 56 shows the relationships between the scores on the twelve mood-change factors and the scores on the thirteen student personality factors for Professor Burtt's experiment.

When one notes that relationships significant at the .05 level of confidence are underlined, the first important observation is that mood _change_ shows very few significant relationships to student personality needs characteristics. On the basis of this teaching experiment, if mood change occurs it will do so pretty much independently of student personalities. One notes, for example, that no significant relationships were in evidence with the intellectually important moods of Concentration, Vigor or Inspiration.

## TABLE 56

## RELATIONSHIPS BETWEEN SCORES ON STUDENT MOOD-CHANGE FACTORS AND STUDENT AI PERSONALITY FACTORS, PROFESSOR BEN BURTT EXPERIMENT[a]

| Mood-Change Factor | AI Personality Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | s/a | aud | int | mot | app | ord | sub | clo | sen | fri | exp | ego |
| Aggression | -057 | -091 | 005 | -032 | 073 | 099* | 081 | 055 | -057 | -002 | -076 | -048 |
| Concentration | -074 | 058 | -025 | -054 | -070 | -059 | -044 | -002 | 027 | -055 | 005 | -052 |
| Fatigue | 032 | 021 | 068 | 081 | 036 | 024 | -000 | -016 | -032 | -023 | -015 | -009 |
| Social Affection | 056 | 000 | 108 | 067 | 041 | 033 | 086 | 103 | 072 | 027 | 017 | 073 |
| Anxiety | -029 | 027 | -044 | 023 | 009 | 005 | -039 | -101 | -097 | 040 | -087 | -094 |
| Elation | 002 | 004 | 027 | 038 | 008 | 031 | 005 | -011 | -019 | -076 | -035 | 011 |
| Egotism | -000 | 043 | -022 | -042 | 003 | 031 | 025 | 020 | 005 | 061 | -025 | 042 |
| Vigor | 010 | 007 | -008 | -040 | 018 | -000 | -023 | -003 | 031 | -025 | -035 | 043 |
| Surgency | -049 | 062 | -021 | 026 | -007 | 085 | 012 | -040 | -068 | -012 | -044 | -046 |
| Inspiration | 001 | 006 | -009 | -028 | -023 | -060 | -033 | 017 | 067 | -015 | 022 | 020 |
| Sadness | 033 | 040 | 023 | 081 | 074 | 103 | 043 | -011 | -059 | 039 | -044 | -039 |
| Skepticism | -070 | 073 | 022 | -055 | -048 | 039 | -026 | -067 | -124 | -025 | -090 | -143 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

Several negative relationships occurred with the mood-changes of Anxiety and Skepticism. Students considered to be highly Egotistic became less anxious and less skeptical. Students rated high on the personality characteristic of Expressiveness became less anxious and less skeptical, and less aggressive. Students considered to be high on Sensuousness became less anxious and less skeptical.

Thus, while we are reminded that all moods changed significantly from the beginning to the end of the lesson, very few of these mood changes appear to have been related to student personality characteristics.

If one examines the post-lesson mood scores in relation to student personality characteristics, a totally different pattern occurs. Within the matrix of correlation coefficients reported in Table 57, there are 68 (47.2 percent) significantly different from zero.

The five factors contributing to Educability were, with a single exception, significantly related to the post-lesson mood factors of Concentration, Elation, Vigor, Inspiration, and Social Affection. These essentially comprise the "positive" moods which--with the exception of Social Affection--were shown to have been significantly improved during the course of the lesson. In addition, the five factors were all significantly related negatively to the post-lesson mood of Fatigue. We may conclude that students strongly oriented toward academic achievement were more inclined to report being in the "desired" mood complex at the completion of the lesson than those less concerned with academic achievement.

The five factors contributing to Intellectual Orientation were likewise generally related to the "positive" moods. Four of five factors were significantly related to the moods of Elation, Vigor, and Inspiration. Three of five moods were significantly related to Concentration and Social Affection. One deviation occurred: the personality factor of Audacity was negatively related to the mood of Concentration.

The personality characteristics reflecting Emotional Expression also showed a great deal of consistency. All six factors correlated positively with the post-lesson

## TABLE 57

## RELATIONSHIPS BETWEEN SCORES ON STUDENT POST-LESSON MOOD FACTORS AND STUDENT AI PERSONALITY FACTORS, PROFESSOR BEN BURTT EXPERIMENT[a]

| Mood Factor | AI Personality Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | s/a | aud | int | mot | app | ord | sub | clo | sen | fri | exp | ego |
| Aggression | -010 | 065 | 007 | -028 | -044 | -104* | -118 | -105 | 018 | -031 | 054 | 035 |
| Concentration | 028 | -081 | 155 | 122 | 215 | 200 | 213 | 200 | -015 | -115 | -015 | -037 |
| Fatigue | -056 | 023 | -133 | -150 | -136 | -225 | -151 | -075 | 104 | 046 | 070 | 019 |
| Social Affection | 145 | -003 | 127 | 048 | 168 | 110 | 209 | 335 | 206 | 098 | 196 | 161 |
| Anxiety | -025 | -025 | -011 | -059 | 066 | 066 | 031 | 032 | 036 | -071 | 005 | 066 |
| Elation | 107 | 028 | 099 | 098 | 139 | 100 | 162 | 217 | 100 | 052 | 096 | 123 |
| Egotism | 174 | 084 | 004 | -056 | -015 | -070 | -097 | -024 | 072 | 091 | 141 | 162 |
| Vigor | 148 | 003 | 140 | 173 | 238 | 234 | 174 | 146 | -038 | -021 | -017 | 064 |
| Surgency | 110 | 092 | -042 | 012 | -067 | -099 | -055 | 049 | 117 | 205 | 170 | 104 |
| Inspiration | 151 | 023 | 171 | 161 | 227 | 180 | 172 | 243 | 095 | 030 | 091 | 116 |
| Sadness | -029 | 008 | -054 | -088 | -067 | -012 | -034 | -039 | 015 | -032 | 031 | -008 |
| Skepticism | 050 | 057 | 045 | -016 | 026 | -000 | -069 | -070 | -008 | -005 | -007 | 024 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of cofidence.

mood of Social Affection. Five of six factors correlated positively with the post lesson moods of Surgency, Elation and Inspiration. Four of six factors correlated positively with the post-lesson mood of Egotism.

Relationships were not quite so distinct for students possessing a strong orientation toward Dependency Needs. Two of the seven factors, Constraint and Diffidence, produced dissimilar results when compared with others. Five of seven factors were significantly related to the mood of Concentration. Four of seven factors were significantly negatively related to the moods of Egotism and Surgency.

We may conclude from this experiment that, while students oriented toward certain personality variables exhibit few consistent patterns in their reports of communication-induced changes in mood, they do conform to a great number of specific meaningful patterns in terms of their post-lesson moods.

Table 58 shows the relationships between the students' scores on twelve mood-change factors and their scores on thirteen personality factors, with significant relationships ($p < .05$) underlined, as determined from the Frank Funk experiment. Very few significant relationships were observed. It seems apparent that if mood-changes occur--which they did on eleven of twelve factors--the changes will occur independently of student personality characteristics. This conclusion reinforces the findings of the Ben Burtt experiment.

While student mood-changes were unrelated to personality characteristics, post-lesson moods exhibited a number of interesting relationships. Within the 12 by 12 matrix, 42 significant correlation coefficients were noted. These relationships are shown in Table 59.

It may be recalled that one mood (Vigor) did not change significantly, while two (Concentration and Inspiration) showed significant positive changes during the Frank Funk lesson. Analysis of the post-lesson scores of these moods in relation to the five personality factors comprising the Educability dimension indicated that ten of the fifteen possible relationships were significant. Three of five Educability factors

## TABLE 58

## RELATIONSHIPS BETWEEN SCORES ON STUDENT MOOD-CHANGE FACTORS AND STUDENT AI PERSONALITY FACTORS, PROFESSOR FRANK FUNK EXPERIMENT[a]

| Mood-Change Factor | AI Personality Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | s/a | aud | int | mot | app | ord | sub | clo | sen | fri | exp | ego |
| Aggression | 106 | 041 | 040 | 062 | 069 | 002 | -034 | -008 | -034 | -030 | 021 | -057 |
| Concentration | -026 | 042 | -075 | -140* | -052 | -096 | -135 | -104 | -040 | 060 | -050 | 030 |
| Fatigue | -007 | -021 | -014 | 011 | -060 | -058 | -034 | -006 | 098 | -052 | 085 | 071 |
| Social Affection | 018 | 079 | 038 | 071 | 056 | -009 | -011 | 031 | 024 | -012 | -008 | 051 |
| Anxiety | 038 | 050 | -012 | -049 | 013 | 048 | -095 | -110 | -056 | 051 | -046 | 007 |
| Elation | -031 | -066 | -005 | 021 | 017 | 098 | 069 | 103 | 014 | 017 | -002 | -020 |
| Egotism | -005 | 025 | -009 | 009 | -007 | 041 | -046 | 006 | 081 | 056 | 003 | 070 |
| Vigor | 028 | 008 | 022 | -038 | 034 | 067 | -042 | 032 | 090 | 059 | 031 | 058 |
| Surgency | -070 | -039 | -016 | 056 | 078 | 100 | -005 | 015 | -073 | -022 | -075 | -079 |
| Inspiration | 019 | 001 | 003 | -045 | 076 | 062 | -014 | 072 | 040 | 075 | -009 | 056 |
| Sadness | -025 | 042 | 027 | 023 | 005 | 009 | 002 | -064 | -008 | -036 | -037 | -008 |
| Skepticism | -029 | 061 | 006 | -030 | -043 | -117 | -006 | -016 | 026 | -021 | 056 | -035 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

## TABLE 59

## RELATIONSHIPS BETWEEN SCORES ON STUDENT POST-LESSON MOOD FACTORS AND STUDENT AI PERSONALITY FACTORS; PROFESSOR FRANK FUNK EXPERIMENT[a]

| Mood Factor | AI Personality Factor | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | s/a | aud | int | mot | app | ord | sub | clo | sen | fri | exp | ego |
| Aggression | 037 | 099 | -030 | -037 | -153 | -190 | -223 | -151 | 101 | -047 | 046 | 094 |
| Concentration | -063 | -051 | 003 | -003 | 134 | 131 | 035 | 047 | -060 | -051 | -100 | 069 |
| Fatigue | 074 | 082 | -044 | -115 | -080 | -106 | -086 | -052 | 113 | 065 | 059 | 153 |
| Social Affection | 014 | 022 | 018 | 014 | 049 | -032 | 126 | 226 | 161 | 095 | 136 | 079 |
| Anxiety | -007 | 001 | 004 | -069 | -032 | -005 | -060 | -003 | 127 | -077 | 036 | 072 |
| Elation | 047 | -022 | -011 | 069 | 078 | 057 | 143 | 184 | -007 | 144 | 068 | -021 |
| Egotism | 185 | 159 | 003 | -032 | -084 | -153 | -210 | -145 | 060 | 108 | 055 | 110 |
| Vigor | 064 | 016 | 065 | 156 | 126 | 142 | 101 | 124 | -064 | -012 | 013 | -063 |
| Surgency | 038 | 131 | -076 | 005 | -015 | -140 | -095 | -018 | 018 | 216 | 058 | 041 |
| Inspiration | 096 | 052 | 107 | 135 | 227 | 154 | 143 | 195 | 003 | 042 | -010 | 013 |
| Sadness | 032 | 066 | 011 | -057 | -063 | -027 | -038 | 009 | 191 | -096 | 080 | 153 |
| Skepticism | 016 | 096 | -010 | -022 | -079 | -124 | -108 | -071 | 116 | -032 | 051 | 110 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

were negatively related to the post-lesson mood of Aggression, and two to Skepticism. As with Professor Burtt, one would conclude from Professor Funk's lecture that students oriented toward academic achievement (as identified by the Educability dimension) were more inclined to report being in a "desired" mood complex at the completion of the lesson than those less concerned with academic achievement.

The five factors contributing to Intellectual Orientation were likewise related to the "positive" moods, although to a lesser extent. Three of five personality factors were significantly related to Inspiration, two to Vigor, and one to Concentration. Conversely, the personality factor of Applied Interests was negatively related to the post-lesson mood of Aggression, and the personality factor of Motivation was negatively related to the post-lesson mood of Fatigue.

Generally consistent patterns were also obtained with students strongly oriented toward Dependency Needs. Four of the seven personality factors were significantly related to the post-lesson mood of Inspiration, three to the mood of Vigor, and two each to the moods of Concentration, Elation, and Social Affection. Five of seven factors were significantly negatively related to the post-lesson mood of Egotism, four to Aggression, two each to Surgency and Skepticism, and one each to Fatigue and Sadness. One deviation occurred: the personality factor of Constraint was negatively related to the mood of Social Affection.

No clear pattern, however, emerged from a comparison of moods and personality characteristics reflecting Emotional Expression. Three of six factors correlated positively with the post-lesson moods of Social Affection and Egotism, and two with Elation. Single personality factors correlated positively with the post-lesson moods of Inspiration, Vigor, and Surgency. However, two personality factors also correlated positively with the "negative" moods of Fatigue, Sadness, and Skepticism, and one with Anxiety. Likewise, one factor correlated negatively with the post-lesson mood of Egotism.

Data from the Professor Frank Funk experiment suggest, therefore, that students oriented toward certain personality variables--especially Educability and Dependency Needs and, perhaps, to Intellectuality--conform to a large number of specific meaningful patterns in terms of their post-lesson moods.

Tables 60, 61, and 62 are concerned with the relationships of moods and student personality characteristics in Professor William Sheldon's experimental lecture. Table 60 shows the relationships between 12 mood factors as reported by students immediately preceding the experimental lecture and 14 personality factors and dimensions. Table 61 shows the relationships between the mood factors as reported by students immediately following the experimental lecture and personality characteristics. Table 62 shows the relationships between the changes in mood as reported by the students and their personality characteristics.

The data in Table 60 were examined on the hypothesis that students possessing certain personality characteristics are likely to report certain moods at the beginning of an academic lesson.

Students scoring high on the personality factor of Applied Interests reported significant positive correlations with the moods of Vigor and Inspiration, and negative correlations with Fatigue and Sadness. Students scoring high on the personality factor of Orderliness showed positive relations with the moods of Elation, Vigor, and Inspiration, and negative relations with Aggression, Fatigue, Anxiety, and Sadness. Students scoring high on the personality factors of Audacity and Self-Assertion exhibited identical mood complexes. They were positively related to the moods of Elation, Vigor, and Inspiration, and negatively related to Aggression, Fatigue and Sadness. Students scoring high on Egoism showed positive correlations to the moods of Vigor and Inspiration, and negative correlations to the moods of Aggression, Egotism, and Sadness. The personality factor of Expressiveness was positively related to the mood of Elation, and negatively related to the moods of Aggression and Egotism. Other significant relations with personality factors were: Friendliness positively related to the mood of Surgency and negatively related to the mood of Concentration; both Sensuousness and Closeness negatively related to Concentration; both Submissiveness and Intellectual Interests positively related to the mood of Egotism.

# TABLE 60

## RELATIONSHIPS BETWEEN SCORES ON 12 PRE-LESSON MOOD SCORES, 12 AI PERSONALITY FACTOR SCORES, AND 2 AI PERSONALITY DIMENSION SCORES, PROFESSOR WILLIAM SHELDON EXPERIMENT[a]

| Pre-Lesson Mood | AI Personality | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Factor | | | | | | | | | | | | Dimension | |
| | mot | int | app | ord | aud | s/a | ego | exp | fri | sen | clo | sub | INT | DEP |
| Aggression | 047 | 094 | -042 | -135* | -155 | -192 | -200 | -139 | 043 | 020 | 030 | 124 | -047 | -248 |
| Concentration | -087 | 041 | 091 | 069 | 089 | 079 | 021 | -090 | -169 | -165 | -156 | -071 | 051 | 078 |
| Fatigue | -120 | -044 | -162 | -198 | -202 | -182 | -098 | -092 | 034 | 059 | -014 | -018 | -191 | -140 |
| Social Affection | -050 | -059 | -021 | 003 | 030 | 108 | 050 | 098 | 038 | -112 | 018 | 017 | -027 | 088 |
| Anxiety | -043 | -061 | -096 | -135 | -104 | -096 | -054 | -021 | 033 | 011 | 017 | 058 | -115 | -076 |
| Elation | 007 | 070 | 089 | 172 | 140 | 136 | 067 | 139 | 076 | -041 | 046 | 082 | 123 | 084 |
| Egotism | 097 | 224 | -006 | 044 | 090 | -021 | -235 | -232 | -045 | -049 | -016 | 167 | 113 | -197 |
| Vigor | 028 | 033 | 150 | 246 | 203 | 173 | 178 | 118 | -023 | -047 | -034 | 029 | 172 | 180 |
| Surgency | -040 | 093 | 025 | 099 | 059 | -041 | -060 | 026 | 134 | 065 | 085 | 113 | 058 | -078 |
| Inspiration | 016 | 054 | 177 | 170 | 217 | 231 | 147 | 070 | -115 | -086 | -044 | -058 | 165 | 194 |
| Sadness | -044 | -037 | -151 | -223 | -221 | -199 | -172 | -115 | -021 | -032 | 018 | 060 | -175 | -202 |
| Skepticism | -015 | 050 | -038 | -054 | -023 | 067 | -073 | -088 | -076 | -079 | -061 | 056 | -022 | -036 |

[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

Many interesting relationships occurred with two of the four personality dimensions. On the Intellectual Orientation dimension, students' scores were related to the moods of Vigor and Inspiration and negatively related to Fatigue and Sadness. On the Dependency Needs dimension, students' scores were positively related to the moods of Surgency and Inspiration, and negatively related to the moods of Aggression, Fatigue, Egotism, and Sadness. An error in data processing prevented an overall comparison on the personality dimensions of Emotional Expression and Educability. Inspection of the individual factors contributing to the dimensions suggests the probability that Educability was positively related to the moods of Vigor and Egotism and negatively related to the moods of Aggression, Fatigue, and Sadness; and that Emotional Expression may have been related positively to the mood of Inspiration and negatively to Aggression.

Thus, a great number of psychologically meaningful relationships were reported among students of various personality needs characteristics in terms of their moods prior to the experimental lecture.

Table 61 shows the relationships between the students' scores on the 12 mood factors immediately following the experimental lesson, and their scores on the 12 personality factors and two personality dimensions, with significant relationships ($p < .05$) underlined. Forty-one of 144 cells show significant correlations.

The personality factor of Applied Interests was related positively to the moods of Vigor and Inspiration, and negatively to Aggression, Fatigue, and Sadness. The personality factor of Orderliness was related positively to the moods of Elation, Vigor, and Inspiration, and negatively to Aggression, Fatigue, Sadness, and Skepticism. The personality factor of Audacity was related positively to the moods of Elation, Vigor, and Inspiration, and negatively to Aggression, Fatigue, Anxiety, Sadness, and Skepticism. The personality factor of Self-Assertion was related positively to the moods of Concentration, Elation, Vigor, and Inspiration, and negatively to Aggression, Fatigue, Anxiety, and Sadness. The personality factor of Egoism was related positively to the moods of Inspiration and negatively to Aggression, Egotism, Sadness, and Skepticism. The personality factor of

TABLE 61

RELATIONSHIPS BETWEEN SCORES ON 12 POST-LESSON MOOD SCORES, 12 AI PERSONALITY FACTOR SCORES, AND 2 AI PERSONALITY DIMENSION SCORES, PROFESSOR WILLIAM SHELDON EXPERIMENT[a]

| Post-Lesson Mood | AI Personality | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Factor | | | | | | | | | | | | Dimension | |
| | mot | int | app | ord | aud | s/a | ego | exp | fri | sen | clo | sub | INT | DEP |
| Aggression | 011 | 035 | -142* | -210 | -210 | -187 | -215 | -149 | 040 | 029 | 047 | 093 | -134 | -251 |
| Concentration | -037 | -023 | 116 | 094 | 080 | 132 | 058 | -024 | -119 | -131 | -130 | -115 | 061 | 129 |
| Fatigue | -111 | -029 | -159 | -179 | -205 | -174 | -085 | -097 | 031 | 047 | -010 | 022 | -180 | -150 |
| Social Affection | -073 | -069 | -001 | 047 | 024 | 123 | 105 | 142 | 037 | -082 | -010 | 004 | -020 | 131 |
| Anxiety | -006 | 015 | -082 | -120 | -138 | -183 | -108 | -022 | 094 | 086 | 096 | 127 | -086 | -183 |
| Elation | 010 | 074 | 114 | 173 | 147 | 161 | 062 | 089 | 012 | -082 | 031 | 014 | 134 | 096 |
| Egotism | 126 | 180 | -002 | 016 | 045 | -068 | -166 | -187 | -082 | -007 | -016 | 108 | 094 | -169 |
| Vigor | 006 | 081 | 161 | 246 | 215 | 173 | 099 | 057 | -041 | -089 | -071 | 014 | 183 | 147 |
| Surgency | 008 | 118 | 003 | 097 | -013 | -098 | -109 | -019 | 066 | 050 | 078 | 032 | 054 | -129 |
| Inspiration | 030 | 097 | 204 | 211 | 214 | 187 | 128 | 082 | -039 | -122 | -051 | 008 | 198 | 155 |
| Sadness | -010 | -034 | -184 | -241 | -231 | -206 | -189 | -113 | 029 | 030 | 047 | 053 | -182 | -219 |
| Skepticism | -019 | 031 | -078 | -130 | -138 | -073 | -163 | -216 | -078 | -020 | -035 | 043 | -087 | -142 |

[a] All Figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

Expressiveness was related positively to the mood of Social Affection, and negatively to Aggression, Egotism, and Skepticism. Other significant relationships with personality factors were: Sensuousness negatively related to the mood of Concentration; Submissiveness positively related to the mood of Anxiety, both Motivation and Intellectual Interests positively related to the mood of Egotism.

These relationships were quite similar to those noted prior to the lecture. It was not surprising, therefore, to observe similar relationships between the personality dimension scores and moods. On the Intellectual Orientation dimension, students' scores were positively related to the moods of Elation, Vigor, and Inspiration, and negatively related to the moods of Aggression, Fatigue, and Sadness. On the Dependency Needs dimension, students' scores were positively related to the moods of Concentration, Social Affection, Vigor, and Inspiration, and negatively related to the moods of Aggression, Fatigue, Anxiety, Egotism, Surgency, Sadness, and Skepticism.

While students possessing certain personality characteristics reported significant patterns of moods at two points in time--before and after an experimental lecture--the larger question remained. What was the nature of the change in mood, if any, from the beginning to the end of the lecture? We have previously noted that significant changes occurred with all mood factors. Were these changes related to students' personality characteristics? Table 62 presents the relationships between mood-changes reported by students and their personality characteristics.

The most significant fact was the scarcity of significant relationships. Only one correlation coefficient in a matrix of 168 cells was significant beyond the .05 level of confidence.

A number of conclusions may be drawn from these data. Significant relationships were shown between certain personality types and reports of mood prior to a lesson. These relationships were generally favorably disposed toward a viable teaching-learning gestalt. Significant changes in moods occurred during the lecture. These changes were generally in desired directions. The changes in mood occurred, however, independently of student personality characteristics.

## TABLE 62

### RELATIONSHIPS BETWEEN SCORES ON 12 STUDENT MOOD-CHANGE FACTORS, 12 STUDENT AI PERSONALITY FACTORS, AND 2 STUDENT AI PERSONALITY DIMENSIONS, PROFESSOR WILLIAM SHELDON EXPERIMENT[a]

| Mood-Change Factor | AI Personality | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Factor | | | | | | | | | | | | Dimension | |
| | mot | int | app | ord | tim | s/a | ego | exp | fri | sen | clo | sub | INT | DEP |
| Aggression | -056 | -097 | -116 | -060 | 031 | 053 | 030 | 021 | -015 | 008 | 014 | -069 | -097 | 057 |
| Concentration | 044 | -078 | 021 | 014 | -015 | 080 | 033 | 081 | 057 | 033 | 063 | -041 | -001 | 062 |
| Fatigue | 006 | 053 | 011 | 038 | 005 | -015 | 006 | -044 | -023 | -003 | -016 | 043 | 029 | -033 |
| Social Affection | 002 | 025 | 064 | 095 | 040 | 033 | 109 | 067 | -023 | 021 | 046 | -018 | 059 | 077 |
| Anxiety | 053 | 104 | 033 | 040 | -026 | -094 | -060 | 003 | 071 | 093 | 097 | 078 | 054 | -124 |
| Elation | 001 | 002 | 025 | -020 | -007 | 017 | -013 | -075 | -087 | -047 | -026 | -090 | 001 | 004 |
| Egotism | 037 | -080 | -006 | -050 | -084 | -079 | 101 | 089 | -017 | 080 | 026 | -073 | -044 | 033 |
| Vigor | -060 | 034 | 005 | 017 | 026 | 015 | -052 | -079 | -092 | -104 | -099 | -076 | 003 | 012 |
| Surgency | 069 | 034 | -028 | -002 | -094 | -073 | -066 | -067 | -100 | -020 | -014 | -110 | -003 | -067 |
| Inspiration | 054 | 058 | 101 | 104 | 051 | 001 | 060 | 095 | 104 | -038 | 032 | 052 | 098 | 020 |
| Sadness | 054 | 021 | -019 | -003 | 018 | 010 | 004 | 028 | 081 | 083 | 047 | -008 | 018 | -002 |
| Skepticism | 032 | -028 | -018 | -059 | -111 | -184* | -091 | -037 | -011 | 044 | 047 | -046 | -045 | -116 |

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[a] All figures should be multiplied by $10^{-3}$.

*Figures underlined are significant at the .05 level of confidence.

Finally, Tables 63, 64, and 65 report the correlations between moods and student personality characteristics determined from the experimental lecture of Professor Lawrence Myers. Table 63 shows the correlation coefficients between pre-lesson moods and personality factors of the students.

Persons scoring high on the personality factor of Intellectual Interests reported a significant positive correlation prior to the lesson with the mood of Concentration. Students scoring high on Motivation reported positive correlations with the moods of Vigor and Inspiration and a negative correlation with Fatigue. Students scoring high on the personality factor of Orderliness reported positive correlations with the moods of Concentration, Vigor, and--interestingly--Anxiety, and a negative correlation with Surgency.

Students scoring high on Friendliness reported pre-lesson positive correlations with the moods of Social Affection, Elation, Surgency, and the added mood factor of Euphoria, and negative correlations with Concentration and Skepticism. Students scoring high on Expressiveness also reported positive correlations with Social Affection, Elation, Surgency, and Euphoria. The personality factor of Closeness was positively related to the moods of Social Affection, Elation, and Vigor. Sensuousness was positively related to Social Affection, Elation, Surgency and Fatigue. As a consequence, students scoring high on the second-order personality dimension of Emotional Expression reported significant positive correlations with the moods of Social Affection, Elation, Surgency, and Euphoria.

Other significant relations with personality factors were: Egoism positively related to Social Affection and Sadness; Submissiveness negatively related to Egotism.

Students scoring high on the second-order factor of Dependency Needs reported significant negative correlations with the moods of Aggression, Egotism, and Surgency. On the Educability dimension, students' scores were positively related to Concentration and negatively related to Surgency.

## TABLE 63

### RELATIONSHIPS BETWEEN SCORES ON 12 PRE-LESSON MOOD SCORES, 12 AI PERSONALITY FACTOR SCORES, AND 4 AI PERSONALITY DIMENSION SCORES, PROFESSOR LAWRENCE MYERS EXPERIMENT[a]

| Pre-Lesson Mood | AI Personality Factor | | | | | | | | | | | | AI Personality Dimension | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 s/a | 2 aud | 3 int | 4 mot | 5 app | 6 ord | 7 sub | 8 clo | 9 sen | 10 fri | 11 exp | 12 ego | 1 Int | 2 Dep | 3 Emo | 4 Edu |
| Aggression | 040 | 065 | -087 | -025 | -088 | -074 | -105 | -103 | 025 | -020 | 010 | 089 | 015 | -132 | 023 | -101 |
| Concentration | 005 | 007 | 115[b] | 080 | 059 | 113 | 044 | 047 | -088 | -206 | -093 | 020 | 072 | 079 | -088 | 113 |
| Fatigue | -019 | 074 | -030 | -108 | -024 | -085 | -089 | -046 | 147 | 055 | 043 | 086 | -026 | -097 | 084 | -089 |
| Social Affection | 045 | -080 | -034 | -045 | -033 | -041 | 052 | 204 | 204 | 126 | 261 | 136 | -069 | -032 | 226 | -030 |
| Anxiety | -035 | 023 | 042 | -037 | 093 | 128 | 043 | -023 | -014 | -085 | -053 | 075 | -013 | 072 | -019 | 071 |
| Elation | 038 | 006 | -015 | 047 | 026 | -072 | 016 | 117 | 138 | 130 | 207 | 001 | -027 | -043 | 154 | -014 |
| Sadness | 048 | 092 | -024 | -071 | 018 | 026 | -002 | -019 | 044 | -038 | 005 | 142 | 019 | -035 | 060 | -016 |
| Skepticism | -047 | 048 | -021 | -015 | -007 | 020 | 005 | -073 | -041 | -173 | 070 | 031 | -031 | -004 | -068 | -005 |
| Vigor | 046 | -079 | 040 | 139 | -007 | 109 | 099 | 107 | -054 | -026 | 066 | -015 | 031 | 077 | 018 | 101 |
| Egotism | 074 | 067 | 026 | 012 | -025 | -017 | -122 | -069 | 007 | -039 | 048 | 072 | 003 | -113 | 021 | -029 |
| Surgency | 088 | 066 | -055 | -031 | -083 | -168 | -058 | 028 | 155 | 199 | 218 | 067 | -016 | -160 | 183 | -106 |
| Inspiration | 070 | -024 | 049 | 109 | -009 | 080 | -005 | 053 | -041 | -017 | 091 | 018 | 020 | -005 | 028 | 063 |
| EUPHORIA | 076 | -002 | -016 | 068 | -049 | -052 | 027 | 101 | 092 | 119 | 203 | 019 | -003 | -052 | 143 | -006 |
| DYSPHORIA | 024 | 078 | -033 | -056 | 005 | 029 | -031 | -063 | 024 | -059 | -014 | 129 | -004 | -045 | 028 | -024 |

[a] All figures should be multiplied by $10^{-3}$.

[b] Figures underlined are significant at the .05 level of confidence.

Thus, many psychologically meaningful relationships were reported among students of various personality needs characteristics in terms of their moods prior to the television lesson.

Table 64 shows the relationships between the students' scores on the mood factors immediately following Professor Myers' lesson and their scores on the Activities Index. Twenty-seven of 144 cells show significant correlations. Comparison of pre-lesson and post-lesson relationships indicate many similarities. Eighteen of the 26 cells with significant correlation coefficients prior to the lesson contained significant r's at the conclusion of the lesson. The only substantial difference occurred with the student personality factor of Audacity, which showed no significant correlations with student's reports of moods prior to the lesson but which was positively related to Sadness and Skepticism and negatively related to Social Affection after the lesson.

While interesting patterns of mood for students reporting certain personality characteristics were observed before and after the lecture, it remained to note the nature of the changes in mood which occurred in significant measure during the lesson. Table 65 shows the relationships between mood-changes reported by students and their personality characteristics. Once again, very few significant relationships--only three in the 12 x 12 matrix--were found. The conclusions to be drawn reinforce those determined from all previous experiments. While a number of significant relationships exist between students and their reported mood patterns both prior to and following a lesson, no significant relationships of any consequence exist between the many significant changes in mood and the personality characteristics of the students. The mood changes, in other words, appear to occur independently of student personality characteristics.

## TABLE 64

## RELATIONSHIPS BETWEEN SCORES ON 12 POST-LESSON MOOD SCORES, 12 AI PERSONALITY FACTOR SCORES, AND 4 AI PERSONALITY DIMENSION SCORES, PROFESSOR LAWRENCE MYERS EXPERIMENT[a]

| Post-Lesson Mood | AI Personality Factor | | | | | | | | | | | | AI Personality Dimension | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 s/a | 2 aud | 3 int | 4 mot | 5 app | 6 ord | 7 sub | 8 clo | 9 sen | 10 fri | 11 exp | 12 ego | 1 Int | 2 Dep | 3 Emo | 4 Edu |
| Aggression | 010 | 070 | -016 | 012 | -026 | -046 | -051 | -075 | 008 | -001 | 000 | 047 | 030 | -075 | 012 | -033 |
| Concentration | 001 | -003 | 110[b] | 080 | 003 | 109 | 046 | -017 | -123 | -208 | -094 | 018 | 028 | 074 | -108 | 097 |
| Fatigue | 012 | 075 | -073 | -060 | -043 | -045 | -130 | -103 | 121 | 051 | 100 | 082 | -023 | -140 | 074 | -093 |
| Social Affection | 025 | -129 | -069 | -061 | -019 | 017 | 087 | 227 | 174 | 127 | 210 | 095 | -097 | 046 | 197 | -017 |
| Anxiety | 005 | 059 | 015 | -006 | 035 | 095 | -031 | -034 | 047 | -018 | -025 | 151 | -016 | -019 | 025 | 030 |
| Elation | 023 | -083 | -092 | -055 | -049 | -016 | 016 | 132 | 091 | 143 | 117 | 045 | -096 | 007 | 122 | -056 |
| Sadness | 036 | 102 | -071 | -057 | -065 | -006 | -073 | -081 | 038 | -047 | -023 | 152 | -021 | -110 | 025 | -073 |
| Skepticism | 028 | 178 | 058 | 011 | 001 | -035 | -020 | -067 | 017 | -138 | -014 | 031 | 066 | -078 | -009 | 007 |
| Vigor | 094 | -055 | 036 | 064 | -040 | 048 | 084 | 079 | -059 | -032 | 045 | -017 | -006 | 042 | 025 | 051 |
| Egotism | 132 | 043 | -013 | -027 | -073 | -071 | -113 | -015 | 046 | 001 | 099 | 074 | -016 | -133 | 084 | -076 |
| Surgency | 055 | 041 | -137 | -131 | -100 | -203 | -070 | 050 | 180 | 251 | 232 | 085 | -072 | -172 | 206 | -174 |
| Inspiration | 040 | 067 | 097 | 076 | 059 | 082 | -080 | 041 | -079 | -075 | 001 | -057 | 046 | 073 | -032 | 107 |
| EUPHORIA | 074 | -033 | -083 | -053 | -076 | -065 | 010 | 102 | 080 | 150 | 161 | 044 | -071 | -052 | 142 | -074 |
| DYSPHORIA | 030 | 087 | -035 | -017 | -026 | 009 | -058 | -073 | 038 | -020 | 010 | 136 | -001 | -083 | 032 | -033 |

[a] All figures should be multiplied by $10^{-3}$.

[b] Figures underlined are significant at the .05 level of confidence.

## TABLE 65

## RELATIONSHIPS BETWEEN SCORES ON 12 STUDENT MOOD-CHANGE FACTORS, 12 STUDENT AI PERSONALITY FACTORS, AND 4 STUDENT AI PERSONALITY DIMENSIONS, PROFESSOR LAWRENCE MYERS EXPERIMENT[a]

| Mood-Change Factor | AI Personality Factor | | | | | | | | | | | | AI Personality Dimension | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 s/a | 2 aud | 3 int | 4 mot | 5 app | 6 ord | 7 sub | 8 clo | 9 sen | 10 fri | 11 exp | 12 ego | 1 Int | 2 Dep | 3 Emo | 4 Edu |
| Aggression | -046 | -003 | 099 | 040 | 082 | 039 | 078 | 041 | -031 | 027 | -019 | -070 | 053 | 085 | -023 | 092 |
| Concentration | -001 | -013 | -006 | -002 | -059 | 006 | 002 | -065 | -037 | -017 | -007 | 006 | -045 | -030 | -025 | -001 |
| Fatigue | 048 | -011 | -054 | 066 | -024 | 051 | -047 | -061 | -041 | 000 | 068 | -010 | 005 | -047 | -012 | -003 |
| Social Affection | 010 | -087 | -073 | -031 | -002 | 063 | 028 | 053 | -010 | 039 | -027 | -028 | -050 | 082 | 008 | -007 |
| Anxiety | 053 | 037 | -039 | 042 | -084 | -061 | -094 | -009 | 073 | 092 | 042 | 075 | -001 | -118 | 055 | -061 |
| Elation | -013 | -082 | -069 | -099 | -007 | 061 | 006 | 010 | -055 | 005 | -096 | 039 | -058 | 056 | -039 | -032 |
| Sadness | -025 | -014 | -052 | 036 | -107[b] | -048 | -082 | -072 | -023 | 002 | -038 | -033 | -053 | -080 | -061 | -066 |
| Skepticism | 091 | 132 | 086 | 028 | 011 | -058 | -029 | 016 | 071 | 058 | 072 | 001 | 109 | -078 | 076 | 014 |
| Vigor | 061 | 036 | -013 | -093 | -039 | -082 | -023 | -042 | 000 | -003 | -023 | 002 | -042 | -051 | 012 | -067 |
| Egotism | 066 | -039 | -053 | -052 | -058 | -067 | 027 | 079 | 049 | 057 | 061 | -006 | -027 | -012 | 079 | -057 |
| Surgency | -039 | -031 | -096 | -114 | -019 | -037 | -011 | 026 | 027 | 059 | 014 | 018 | -065 | -010 | 024 | -078 |
| Inspiration | -029 | 030 | 045 | -034 | 064 | -004 | 072 | -018 | -029 | -060 | -084 | -070 | 025 | 067 | -057 | 038 |
| EUPHORIA | -005 | -033 | -073 | -139 | -028 | -011 | -019 | -003 | -018 | 029 | -058 | -028 | -075 | 004 | -008 | -075 |
| DYSPHORIA | -022 | -013 | -010 | 053 | -054 | -024 | -039 | -026 | 004 | 050 | -028 | -017 | -015 | -039 | -028 | -018 |

[a] All figures should be multiplied by $10^{-3}$.

[b] Figures underlined are significant at the .05 level of confidence.

## CHAPTER VI

## CONCLUSIONS AND RECOMMENDATIONS

This research project was concerned with three related problems involved in the presentation and perception of college level instruction on television. The first problem was to attempt to ascertain television teacher personality factors consistently perceived by students. The second problem was to examine relationships between personality traits of the television teacher and those of the television learner. The third problem was to investigate the influence of the television teacher in stimulating the student sufficiently to effect a change of mood, and to relate this affective behavior to teacher and learner characteristics.

From the domain of vocabulary available to describe teacher characteristics, a list was prepared of adjectives believed to be relevant in those situations in which the only interactive relationships between teacher and learner was a vicarious experience resulting from the student viewing the teacher on television. The adjectives selected also met the criterion of being able to be presented to students in either unidimensional or bidimensional scale form.

A sample of 618 students representing a cross section of Syracuse University undergraduates was asked to rate on ten-point unidimensional adjectival scales the degree of importance they attached to each adjective in describing an Ideal Teacher. A principal components factor analysis with equamax rotation to simple structure tentatively identified twelve positive (and two negative) factors. The large number of factors obtained was both surprising and promising. Earlier work by Osgood had suggested three major factors, and preliminary work by the author had suggested two or three more. Considerable credit must go to the equamax rotational program. With the large number of factors, the entire research effort took on a complexity beyond that originally imagined.

In defining an Ideal Teacher, women rated the factors of Stimulation, Friendliness, Control, Dynamism, Composure, and Note Taking as of significantly greater importance than men. Men rated Wit and Intimacy higher. Other variations occurred when the respondents were compared on the basis of major areas of study and student personality variables. Variations were sufficient to suggest that such characteristics should be taken into account in those academic situations where students regularly rate college teachers.

Following the preliminary development of the Ideal Teacher instrument, five television teaching experiments were conducted for the purpose of verifying and refining the traits. After each experimental lecture, students rated the teacher on the basis of adjectives now presented in semantic differential scale form. Students also reported their moods at the beginning and end of each lecture by completing a Mood Adjective Check List (MACL). All students had previously completed the Stern Activities Index (AI), which identified twelve personality needs characteristics. Each of the experiments was designed to study a different aspect of television teaching, and the lectures were selected and created to represent the widest possible variations in uses of the television medium. Factor analyses were performed after each lecture, and the experiments produced television teacher trait factors varying in number from twelve to sixteen.

On the basis of a comparative analysis of all experiments the following factors and contributory scales were recommended as constituting a Television Teacher Trait instrument to be used by students receiving instruction by means of television.

1. Communicative Ability--communicative, easy to take notes, organized, direct, and clear vs. inarticulate, hard to take notes, unorganized, evasive, and hazy.
2. Stimulation--interesting and stimulating vs. boring and deadening.
3. Control--controlled vs. impulsive.
4. Assertiveness--assertive and aggressive vs. restrained and timid.
5. Composure--relaxed and poised vs. tense and ill-at-ease.
6. Dynamism--forceful and dynamic vs. weak and static.
7. Friendliness--friendly and sincere vs. hostile and insincere.
8. Wit--gay and witty vs. solemn and stolid.
9. Profundity--profound and brilliant vs. shallow and mediocre.
10. Intimacy--personal and intimate vs. impersonal and remote.

In terms of an Ideal Teacher, the first two factors were considered by students to be "essential," the next five "of great importance," and the last three "of some importance." This study has not developed a formula or model whereby, through some arbitrary or criterion-based weighting procedure, scores on the several factors could be converted to a single composite score. If feasible, such a procedure would have considerable utility in simplifying the selection and rank-ording of teachers being considered for a particular television instructional series. Such research is recommended as an inevitable follow-up to the identification of the separate television teacher trait factors which has been accomplished in this study.

In the Ideal Teacher experiment, and in connection with the lectures of Professor Burtt, Funk, Sheldon and Myers, the design permitted comparisons between student assessments of teacher traits and student personality needs characteristics. While many significant relationships were noted, few consistent patterns were observed, and further work is suggested in this area. Fewer significant differences in teacher ratings were reported on the basis of sex, year, college, or major area of study during the experimental television lessons than in the Ideal Teacher experiment. Teacher ratings, as reported for the lecture by Professor William Sheldon, did not appear to be a function of the verbal ability of students.

The experiment involving Professor Benjamin Burtt was designed to permit comparisons of the professor presenting his lecture to one group of students in the lecture hall by normal means and to another group by means of television. On the factors of Stimulation, Dynamism, Friendliness, Control, Profundity, Communication, Composure, and Note Taking, no significant differences were observed between ratings by students in the control and experimental groups. Students who saw Professor Burtt on television rated him more Personal and Assertive than those who saw him in the classroom--evidence of the "intimate" quality of television. The combination of close-ups and the illusion of the teacher simultaneously looking each student straight in the eye provided a one-to-one student-teacher relationship, and students perceived this attribute of intimacy in a teacher properly utilizing the medium. The factor of Assertiveness was probably similarly related to the all-inclusive eye contact. Students in the classroom, conversely, rated Professor Burtt higher on a factor of Forcefulness than did those in the television section. Perhaps, in a limited sense, the television set constructed a thin electronic barrier between teacher and student, but this single variation should be examined against the failure to develop significant differences on most other factors.

Students located in the front of the lecture hall--physically much nearer Professor Burtt than those in the rear--rated the teacher higher on the factors of Stimulation and Note Taking. Neither of these differences were noted in the television section.

At the conclusion of Professor Burtt's lecture, significant changes were reported on all twelve mood factors. The moods of Vigor, Concentration, Elation, and Inspiration increased; moods of Fatigue, Skepticism, Anxiety, Sadness, Egotism, and Aggression decreased, as did Social Affection and Surgency. Variations in moods between the television and classroom groups reported at the beginning of the lecture were not present at the conclusion. The professor was able to achieve the same mood complex by television as he achieved in the classroom. The medium of television was no barrier in this endeavor.

These findings, taken together, are of considerable significance and constitute a strong endorsement for the use of television. The medium was at no disadvantage--indeed, on balance, it may have shown a slight advantage--in projecting the image or personality of the instructor. In fact, it gave all students, no matter where located, a similar view and perception of the lesson. Most importantly, not only was the professor able to achieve significant positive changes in affective behavior with his lesson, but he was also able over television to affect student behavior to the same degree as in the classroom.

The television experiment involving Professors Frank Funk and Irving Lee permitted direct comparisons between student ratings and reports of affective reactions to the two teachers. Using entirely different approaches to the medium, Professor Funk was rated statistically higher than Professor Lee on the factors of Stimulation, Activity, Grace, Communication, Forcefulness, Note Taking, Clarity, and Assertiveness; but lower on Naturalness. Nine of twelve mood factors showed significant change after Professor Funk's lecture; seven after Professor Lee's lecture. Students viewing Professor Funk reported being in a greater mood of Concentration, Social Affection, Elation, Vigor, and Inspiration at the conclusion of the lecture than did those viewing Professor Lee.

Similar relationships were observed with the experimental lectures of Professors Lawrence Myers and Charles Siepmann that were viewed by the same students. Deliberately, Professor Myers' lecture was designed to make maximum use of the television medium whereas Professor Siepmann's lecture presented what has historically become known as the "talking face." Students rated Professor Myers statistically higher than Professor Siepmann on the factors of Assertiveness, Wit, Organization, Friendliness, Directness, Stimulation, and Confidence; but lower on Profundity and Control. The lecture by Professor Myers was accompanied by significant changes on nine mood factors, and Professor Siepmann's lecture showed seven changes. However, the patterns differed. Students viewing Professor Myers reported decreases on six factors (Aggression, Fatigue, Anxiety, Sadness, Skepticism, Egotism), and increases on three factors (Concentration, Elation, Inspiration), while three factors (Social Affection, Vigor, Surgency) maintained their high pre-lesson levels. Students viewing Professor Siepmann reported decreases on five factors (Social Affection, Vigor, Elation, Egotism, Surgency), and increases on two factors (Concentration, Fatigue). Professor Myers' lesson was accompanied by a decrease in Dysphoria, while Professor Siepmann's lesson was accompanied by a decrease in Euphoria.

While significant differences were noted in the mood complexes of men and women both prior to and after the Myers and Siepmann lectures, the mood changes reported by students occurred independently of sex, year in school, or interactions between these variables, and appeared to be a function primarily of the teachers and, presumably, the environments created by them and their treatments of their subjects.

Finally, in an experiment involving seven television teachers being rated by one class of students, the evidence strongly supports the thesis that students discriminate among teachers on the teacher trait variables studied. Significant F's were obtained between teachers on eleven of twelve factors, and on each of the thirty-nine separate adjectival scales. Two teachers among the seven achieved a greater effect, in terms of student ratings. Student reports of mood were not available for this experiment.

Taken as a group, the three experiments summarized above suggest that the television teacher trait instrument is able to discriminate among teachers, and that a strong relationship exists between teacher ratings and the formation of a "positive" mood or frame of mind on the part of the students.

Post-lesson moods reported by students were compared with teacher trait ratings after the lectures of Professors Burtt, Funk, Sheldon, and Myers. Significant correlations occurred in 30 percent of the comparisons. Four Teacher Trait factors--Profundity, Stimulation, Wit, and Communication--showed significant relationships with specific moods in at least three of the four experiments. Of lesser importance, based on these experiments, but of sufficient interest for further study, were the factors of Dynamism, Composure, and Friendliness, as they related to post-lesson moods.

Significant relationships were obtained between certain student personality needs characteristics and their reports of mood prior to the various experimental lectures. These relationships were generally favorably oriented toward a viable teaching-learning gestalt. Significant changes in the mood-complexes of students occurred during each lecture. In particular, students exposed to the lectures by Professors Burtt, Funk, Sheldon, and Myers reported significant increases in the moods of Concentration and Inspiration, and significant decreases in the moods of Aggression, Fatigue, Anxiety, Sadness, Skepticism, and Egotism. These resultant moods were also correlated in many meaningful ways with student personality characteristics. However, no significant relationships occurred between the many significant changes in mood and the personality characteristics of students. The mood changes occurred independently of student personality characteristics.

In summary, the initial task of developing a Television Teacher Trait rating instrument was achieved, resulting in a somewhat more complex instrument then had been envisaged. Whether the factor scores obtained from its use may be combined into a single score remains a subject for further study. Specific patterns of relationships between the personality characteristics of television teachers and television learners, although shown to exist, were not clearly defined and likewise require further study. This research has clearly shown that teachers on television can achieve significant affective changes in the moods of students, and can do so in positive directions and independently of student personality characteristics.

It is the author's belief that this research has demonstrated that television teaching at the college level can, indeed, be a stimulating intellectual experience for students.

# APPENDICES

# APPENDIX A

# EXPERIMENTAL STUDY OF ATTITUDES TOWARD CERTAIN CONCEPTS

This is NOT a graded test.

A. Please fill in the following general information:

Name________________________________________

Year (circle one): Freshman Sophomore Junior Senior

Graduate

School or College (e.g.: Lib Arts, Bus Ad, Speech, etc.

____________________________________________________

Major Department of Study, current or planned
(e.g.: English, Physics, etc.)________________________

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

### INSTRUCTIONS

B. We'd like your quick reactions to some words and phrases. One the following two pages you will find a phrase followed by a series of ten-step rating scales. Each scale is composed of an adjective and ten numbers from 0 to 9. You are to circle one number to indicate the degree to which the adjective applies to the main concept at the top of the page.

* DO NOT SKIP ANY SCALES.

* DO NOT CIRCLE MORE THAN ONE NUMBER ON A LINE.

* WORK FAST. DON'T WORRY OR PUZZLE OVER ITEMS. GIVE FIRST REACTIONS.

Turn the page and start working.

## MY CONCEPTION OF IDEAL TEACHER

| | NO IMPORTANCE | | | SOME IMPORTANCE | | | VERY IMPORTANT | | ESSENTIAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. active | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2. aggressive | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 3. assertive | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 4. authoritative | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 5. brilliant | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 6. clear | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 7. colorful | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 8. communicative | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 9. confident | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10. controlled | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 11. definite | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 12. demonstrative | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 13. direct | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 14. dynamic | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 15. easy to take notes | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 16. effective | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 17. enthusiastic | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 18. exciting | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 19. friendly | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 20. gay | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 21. graceful | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 22. impressive | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Have you skipped any scales?

TURN PAGE AND CONTINUE WORKING

MY CONCEPTION OF IDEAL TEACHER

| | NO IMPORTANCE | | | SOME IMPORTANCE | | | VERY IMPORTANT | | ESSENTIAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| 23. impulsive | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 24. inhibited | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 25. inspiring | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 26. interesting | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 27. intimate | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 28. natural | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 29. organized | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 30. personal | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 31. pleasant to listen to | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 32. poised | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 33. profound | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 34. relaxed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 35. restrained | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 36. sincere | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 37. sociable | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 38. stimulating | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 39. strong | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 40. timid | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 41. vigorous | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 42. warm | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 43. withdrawn | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 44. witty | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Have you skipped any scales?

PLEASE HAND IN. THANK YOU VERY MUCH.

# APPENDIX B

# EXPERIMENTAL STUDY OF ATTITUDES

This is NOT a graded test.

## Instructions

We'd like your quick reaction of today's teacher. Below is a series of *nine-step* rating scales. Each scale is composed of opposite meaning adjectives and presented in this form:

TODAY'S TEACHER

nervous ____:____:____:____:____:____:____:____:____ confident

interesting ____:____:____:____:____:____:____:____:____ boring

In the above example, if you feel that today's teacher was *extremely* confident, you would check the space near the "confident" end of the scale. If you think he was *quite* confident, you would check the space next to the end. If you think he was only *slightly* confident, you would check a space closer to the middle.

If you think that today's teacher was *neither* confident or nervous, or if you think that these adjectives *do not apply*, check the middle space.

Similarly with the second pair of words: if you think that today's teacher was completely boring, check the extreme position; if you feel quite sure that he was boring, check the next space in, and so on.

* DO NOT SKIP ANY SCALES.
* DO NOT PUT MORE THAN ONE CHECK ON A LINE.
* WORK FAST. DON'T WORRY OR PUZZLE OVER ITEMS. GIVE FIRST REACTIONS.
* PUT YOUR CHECK-MARK IN THE MIDDLE OF SPACES, NOT ON BOUNDARIES.

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## "TODAY'S TEACHER"

forceful ____:____:____:____:____:____:____:____:____ weak

not enthusiastic ____:____:____:____:____:____:____:____:____ enthusiastic

uncertain ____:____:____:____:____:____:____:____:____ definite

profound ____:____:____:____:____:____:____:____:____ shallow

pleasant to listen to ____:____:____:____:____:____:____:____:____ unpleasant to listen to

nervous ____:____:____:____:____:____:____:____:____ confident

dull ____:____:____:____:____:____:____:____:____ exciting

personal ____:____:____:____:____:____:____:____:____ impersonal

superficial ____:____:____:____:____:____:____:____:____ authoritative

effective ____:____:____:____:____:____:____:____:____ ineffective

natural ____:____:____:____:____:____:____:____:____ affected

hazy ____:____:____:____:____:____:____:____:____ clear

apathetic ____:____:____:____:____:____:____:____:____ inspiring

hard to take notes ____:____:____:____:____:____:____:____:____ easy to take notes

dynamic ____:____:____:____:____:____:____:____:____ static

intimate ____:____:____:____:____:____:____:____:____ remote

lifeless ____:____:____:____:____:____:____:____:____ vigorous

brilliant ____:____:____:____:____:____:____:____:____ mediocre

relaxed ____:____:____:____:____:____:____:____:____ tense

cool ____:____:____:____:____:____:____:____:____ warm

sincere ____:____:____:____:____:____:____:____:____ insincere

impressive ____:____:____:____:____:____:____:____:____ unimpressive

hostile ____:____:____:____:____:____:____:____:____ friendly

interesting ____:____:____:____:____:____:____:____:____ boring

unorganized ____:____:____:____:____:____:____:____:____ organized

solemn ____:____:____:____:____:____:____:____:____ gay

direct ____:____:____:____:____:____:____:____:____ evasive

ill-at-ease ____:____:____:____:____:____:____:____:____ poised

stimulating ____:____:____:____:____:____:____:____:____ deadening communicative ____:____:____:____:____:____:____:____:____inarticulate

colorless ____:____:____:____:____:____:____:____:____colorful

awkward ____:____:____:____:____:____:____:____:____graceful

demonstrative ____:____:____:____:____:____:____:____:____withdrawn

timid ____:____:____:____:____:____:____:____:____aggressive

sociable ____:____:____:____:____:____:____:____:____inhibited

active ____:____:____:____:____:____:____:____:____passive

restrained ____:____:____:____:____:____:____:____:____assertive

witty ____:____:____:____:____:____:____:____:____stolid

impulsive ____:____:____:____:____:____:____:____:____controlled

Have you skipped any scales?

PLEASE FILL IN BLANKS

School or College __________________________________ Year_______

Department of Study, current or planned ________________________

PLEASE HAND IN. THANK YOU VERY MUCH.

# APPENDIX C

# MOOD ADJECTIVE CHECK LIST

Instructions: Each of the words in the following list describes feelings or mood. Please use the list to describe your feelings at this moment.

If the word definitely describes how you feel at the moment you read it, circle the double check (vv) to the right of the word. For example, if the word is calm and you are definitely feeling calm at the moment, circle the vv as follows:

calm [✓ vv] v ? no (This means you definitely feel calm at the moment.)

If the word only slightly applies to your feelings at the moment, circle the single check as follows:

calm vv [✓ v] ? no (This means you feel slightly calm at the moment.)

If the word is not clear to you or if you cannot decide whether or not it applies to your feelings at the moment, circle the question mark as follows:

calm vv v [✓ ?] no (This means you cannot decide whether you are calm or not.)

If you clearly decide that the word does not apply to your feelings at the moment, circle the no as follows:

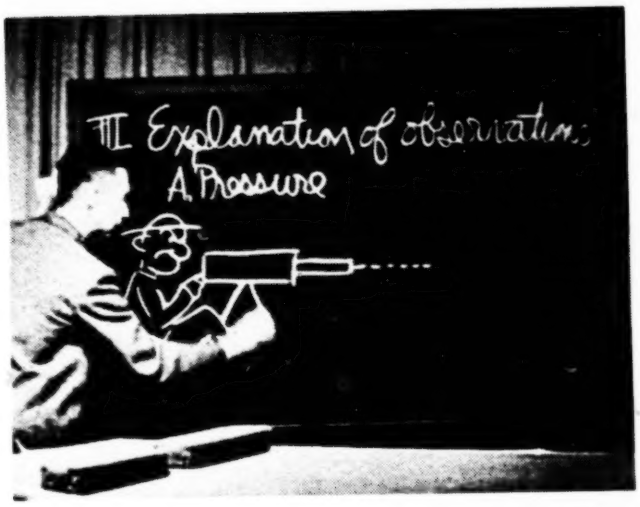
calm vv v ? [✓ no] (This means you are definitely not calm at the moment.)

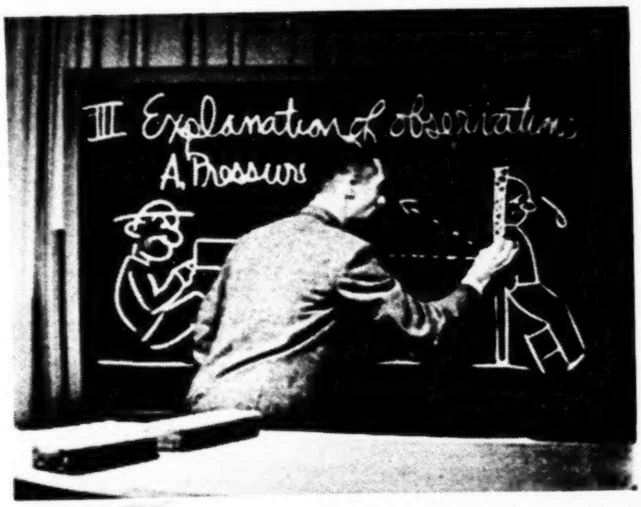
Work rapidly. Your first reaction is best. Work down the first column, then go on to the next. Please mark all words. This should take only a few minutes.

active vv v ? no
affectionate vv v ? no
blue vv v ? no
boastful vv v ? no
carefree vv v ? no
clutched-up vv v ? no
concentrating vv v ? no
defiant vv v ? no
drowsy vv v ? no
egotistic vv v ? no
elated vv v ? no
energetic vv v ? no
engaged in thought vv v ? no
fearful vv v ? no
fed-up vv v ? no
insecure vv v ? no
inspired vv v ? no
kindly vv v ? no
lighthearted vv v ? no
nonchalant vv v ? no
playful vv v ? no
pleased vv v ? no

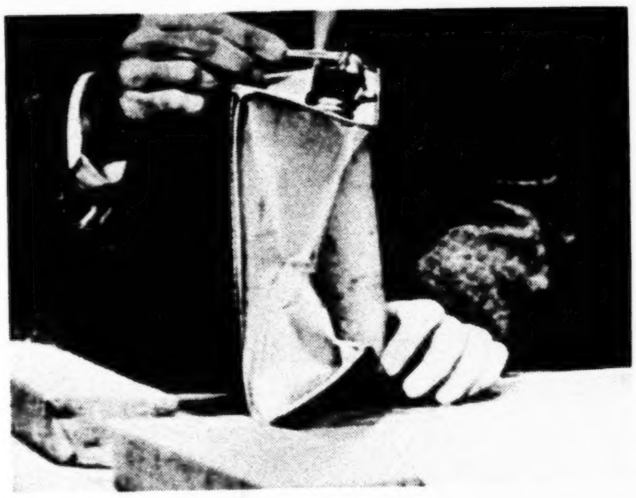
rebellious vv v ? no
regretful vv v ? no
resourceful vv v ? no
sad vv v ? no
self-centered vv v ? no
serious vv v ? no
skeptical vv v ? no
sluggish vv v ? no
stimulated vv v ? no
suspicious vv v ? no
tired vv v ? no
vigorous vv v ? no
warmhearted vv v ? no

Have you marked all words?


III Explanation of observations
A. Pressure


III Explanation of observations
A. Pressure

Explanation o vations
A. Pressure



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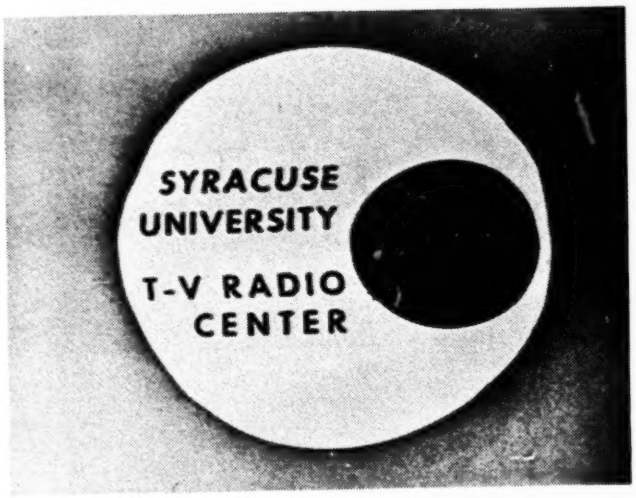
Pressure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